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THE LOSS OF UNSTABLE E IN NORTHERN FRENCH: A DIACHRONIC ANALYSIS

BY

(C)

K.I. MCCALLA

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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Abstract

This study has two main aims. The first is to provide a detailed account of the loss of unstable *e* (schwa) in Northern French dialects from the 9th century to the present. Until about 1500, loss of schwa was for the most part confined to prevocalic and postvocalic positions, although it occurred sporadically between certain types of consonants. In the 16th century loss around consonants developed rapidly, and by about 1650 was common in most positions. Loss patterns in present-day speech depend on the number and type of consonants surrounding the schwa, the position of the latter in the word and group, the frequency of the schwa-containing word, the speed and formality of the speech, and some normative factors.

The second aim, which is directly related to the first, is to examine the relevance of schwa loss patterns to various theoretical problems in phonology, and vice versa. The theoretical questions discussed include the influence of schwa loss on the phonotactic and prosodic systems of French, and on the status of the word as a phonotactic unit in Modern French. On a more general plane, the study examines the relevance of schwa loss patterns to universal theories of phonotactic organization (the "ideal syntagm" and various conceptions of syllable structure), and to the general theory of sound change.

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Phonetic transcription

In general, the IPA system is used in this study, except for the sounds [ʃ] (transcribed [š]), [ʒ] (transcribed [ž]), [tʃ] (transcribed [č]), and [dʒ] (transcribed [ǧ]). Also, vowel length is indicated where relevant by a bar over the vowel symbol; vowel shortness by a curved mark (e.g. [ā], [ă]).

Capital letters are used to designate certain natural classes of sounds. The symbols are as follows:

[V] - any vowel

[C] - any consonant, including liquids and semivowels

[O] - obstruent (stop, fricative, or nasal consonant)

[L] - liquid ([l] or [r])

[G] - semivowels ([j], [w], or [ɥ])

Boundary symbols:

[##] - breath-group (see definition in section 1.3.1 below)

[#] - word

[/] - morpheme

[-] - syllable (used where relevant only)

Chapter 1

General Introduction

1.1 - Topic -

The purpose of this study is twofold. First, it is designed to summarize the development of the loss of unstable *e* (schwa)[1] in the *langue d'oïl* and its offshoots[2] from the 9th century to the present day. This part of the study is based on the work of other scholars and on the examination of some data (both primary and secondary) which have not previously been analyzed for schwa loss. The sources of French schwa and its main characteristics are reviewed in section 1.2; and the body of the material is presented in Chapters 2-4, one for each of the chronological periods into which the history of schwa loss has been divided (see section 1.2.1).

The second aim is to discuss the relevance of schwa loss patterns to various theoretical problems in phonology, and vice versa. The most important matter here is the relationship of schwa loss to the evolving phonotactic system of French, and the importance of loss patterns to theories of phonotactic universals. The relevance of schwa loss to the prosodic system of French, to the status of the word in Modern French, and to a general theory of sound change is also discussed. The necessary introduction to these matters is provided in sections 1.3 (on theoretical questions) and 1.4 (on the phonotactic and prosodic systems of French). The main theoretical discussions are found in the concluding sections of Chapters 2-4,

and in Chapter 5.

1.2 - French Schwa -

1.2.1 - Division of the history of schwa loss into periods -

For convenience, discussion of schwa loss is divided into three periods:

(1) Period 1 - from the earliest texts (9th century) to about 1500 - During this time relatively few schwas were lost. The data on this period are all indirect (primary), coming especially from spellings in hand-copied texts.

(2) Period 2 - 1500 to 1800 - At the beginning of this period, direct (secondary) evidence on schwa loss becomes available in the form of comments by grammarians. Schwa loss accelerated considerably, and by the end of Period 2 was found in most environments.

(3) Period 3 - 19th and 20th centuries - About 1800, prescriptive grammarians began to have a considerable influence on the behaviour of schwa. Through most of this period there is an abundance of data on schwa, including some phonetically transcribed texts which show loss and retention.

1.2.2 - Sources of early Old French schwa -

Schwa occurred in the earliest Old French as the weakened remains of a number of unstressed and semi-stressed Latin vowels, as well as non-etymologically as a "support vowel" which enabled speakers to avoid certain heavy consonant combinations.[3] Semi-stressed or "countertonic" schwa occurred in the first syllable of the word;

completely unstressed schwa in all other syllables. The following is a summary of the sources of early Old French schwa:

(1) In initial syllables: Late Latin [e, ɛ] (from classical [ē, i, e]) regularly became early Old French [ə] (different developments occurred in certain specific environments). Examples (Clédat 1931, §18, pp. 25-6): DĒBĒRE > [dəveir], MĬNŪTO > [məny], VĔNĪRE > [vənir].[4]

(2) In medial syllables: Latin [a], except in the penultimate syllable of proparoxytones,[5] survived as [ə] in early Old French (Pope 1966, §251, p. 112; Clédat 1931, p. 6). Examples: PORTARAJO > [portərai], TRAPALĬARE > [travəlʲer], ORNAMENTUM > [ornəment], ARMATŪRA > [arməðyra].

Any medial Latin vowel might be retained as [ə] when needed to facilitate the articulation of a consonant or consonant group. This occurred principally in the following positions (Pope 1966, §257, pp. 113-4): after an [OL] cluster; and before [lʲ], [n], [ts], "and any particularly heavy group of consonants". Examples: *NUTRĪTŪRA > [noðrəðyrə], LATROCINIUM > [laðrətsiɲ], PAPILIŌNEM > [pəvəlʲuɲ],[6] CAMPINIŌNEM > [čampəɲum],[6] *SUSPECTIONEM > [sospətsun]. Further examples are given by Clédat (1931, p. 10): SEPELĪRE > [sevəlir], ĬNIMĪCO > [ɛnəmi], ORDINĀRE > [ordəner].

(3) In final syllables: again, Latin [a] > [ə] (Pope 1966, §251, p. 112; Clédat 1931, p. 6). Examples: TERRA > [tɛrə], PORTA > [portə], PORTANT > [portənt], PLAGA > [plaiə].

In this position also, any Latin vowel could be retained to

support a consonant. Environments showing retention were (Pope 1966, §258, p. 114): before word-final [nt]; and after [tš], [dž], [OL], [lm], and [ln]. Examples: VENDENT > [vẽndənt], ĂPĬUM > [atšə], SĪMĬUM > [sĩndžə], PĂTREM > [peðrə], FĔBREM > [fievrə], *HELMU > [hɛlmə], ALNUM > [alnə].

(4) Non-etymological schwas: These were added during Late Latin or Gallo-Roman times, when syncope of a non-final vowel would have led to a word-final [OL] consonant cluster. This was avoided by the generation of a word-final schwa as the non-final vowel was weakening. The following examples are given by Nyrop (1914, §250, pp. 248-9): INSIMUL > [ensẽmblə], INTER > [ẽntrə], SEMPER > [sẽmprə], PIPER > [peivrə].[7]

From the above discussion, it seems that many early Old French schwas existed solely because they were "needed" to support consonants or consonant clusters whose independent articulation presented problems for the speakers of the day. The presence of these schwas reveals an extremely low tolerance in early French for many types of consonant clusters (both word-medial and word-final), and also for many final single consonants. Since many of the consonant combinations which were avoided in Gallo-Roman and early Old French occur in present French, one of the major evolutionary trends over the past 1100 years has been toward an increasingly consonantal syntagm. The gradually increasing loss of schwas (including most of those which existed to support consonants in early Old French) was an important factor in this increase in consonantality.

1.2.3 - Characteristics of schwa in current French -

In current French, schwa is the only vowel which cannot be accented.[8] In the rare cases where a group-final schwa is pronounced (see section 4.4), the vowel of the previous syllable receives the rhythmic accent.

Schwa today is generally pronounced like [ø] or [œ], or a vowel between the two (Dauses 1973, pp. 36-7; Malécot and Chollet 1977). The length of schwa varies greatly from position to position and utterance to utterance. Pleasants (1956, ch. 5-8, pp. 75-171) presents figures which demonstrate this great variation in length, and the relative lengths of different types of schwa are mentioned a number of times in Chapter 4. In this study, schwa is considered to be pronounced when enough of a vocalic element occurs to break up the surrounding consonant cluster or sequence (in group-initial and medial position), or to place the otherwise final consonant in intervocalic position (in group-final position).

Schwa is potentially present in current French wherever the spelling shows an *e* corresponding to a schwa which was formerly pronounced.[9] In very careful French, schwa is pronounced only where such an *e* is present in the spelling. Where a former schwa has been lost from the spelling (e.g. *serment* < *sairement*, *albatre* < *alebastre*), it is no longer pronounced (compare Gougenheim 1935, p. 39). Sometimes a non-etymological schwa is inserted in informal standard and non-standard speech: this occurs primarily after two consonants in group-medial position and is discussed in section 4.6.6.

Any potential schwa *may* be pronounced, depending on the dialect and style which a given speaker is using at a given time. It is strictly correct, therefore, to speak of *complete* loss of schwa only in those cases where the corresponding *e* has been lost from the orthography. The phrase "schwa loss was general (or complete) in position X at time Y" is therefore to be understood, whenever it appears in this study, to mean that loss was *common* in the style under discussion by the date mentioned.

1.3 - Theoretical background -

Linguistic studies on the behaviour of schwa in Modern French, as well as historical accounts of the progress of schwa loss, are almost invariably based on the various positions of schwa in the syntagm. For example, schwa behaviour is described by Weinrich (1958, pp. 248-60) and Pulgram (1961) in terms of the prior existence or non-existence of consonant combinations which result or could result from schwa loss; by Delattre (1966, pp. 19-24) in terms of the number of consonants preceding the schwa, and, where two consonants precede, their relative apertures; by Malécot (1955, p. 55) in terms of the place of articulation of the consonants surrounding the schwa; by Léon (1966, pp. 116-20) and Dauses (1973, pp. 49-52) in terms of the number of syllables between the schwa and the rhythmic accent; and by Dauses (1973, pp. 52-7) in terms of the position of the schwa with respect to word boundaries. All these factors concern the relative syntagmatic positions of schwa and some other phonetic or semantic entity, and thus may all be subsumed under the general

term of *phonotactic* factors. In common with all other studies on schwa, the present one is organized, within each of the chronological periods defined in section 1.2.1 above, according to the various phonotactic factors relevant to schwa loss patterns.

The importance of phonotactics to schwa loss does not mean that other factors have no influence. Vital non-phonotactic items include the frequency of the word in which the schwa appears, speech style and tempo, the speaker's desire to emphasize certain elements in his discourse, and in some cases the influence of normative grammar. These factors, which in general operate independently of phonotactic position, are discussed as appropriate throughout the study.

In view of the great importance of phonotactic influences to the behaviour of schwa, it is not surprising that most of the theoretically interesting aspects of the latter concern precisely these influences. The purpose of the remainder of this section is to provide a background discussion on phonotactic theory as it is used in this study. Other items of theoretical importance are discussed in the body of the work as they arise.

1.3.1 - Phonotactics -

As defined above, phonotactics includes the study of all syntagmatic influences on sound patterning and development.[10] Those which are of importance to the description of schwa development are (a) the permissible combinations of vowels and consonants, (b) the nature and position of the rhythmic accents present, and (c) the

presence and relative importance of various semantic boundaries (morpheme, word, etc.). Each of these types has had an influence on schwa behaviour throughout the historical French period. They are considered from a theoretical point of view in this subsection, while section 1.4.2 provides a brief description of their patterning in Early Old French, which forms the starting point of the present study.

The relevance of the syntagmatic patterning of vowels and consonants[11] to language evolution has been widely recognized. The most important aspect here is the relationship between word (or group) and syllable-initial consonant patterns and between word and syllable-final patterns: it has been shown that consonants and clusters which occur in syllable-initial and final positions tend also to occur in word-initial and final positions respectively (see Saporta and Olsen 1958; Pulgram 1970, pp. 43-46; and Vennemann 1972). Anderson (1965b) has demonstrated the relevance of this tendency to the progress of vowel syncope within words in Vulgar Latin; syncope was much more frequent when the resulting consonant sequence could be dissolved into a word-final consonant plus a word-initial consonant than when this was not possible. Other studies which examine the diachronic development of syntagmatic sound patterns include Kim (1965) on Italian, Valencia (1966) on Spanish, Klausenburger (1970) on French, and Lipski (1974). The importance of such patterns to the evolution of French schwa itself, and vice versa, has been briefly examined by Klausenburger (1970, pp. 49-54 and

72-3).

The great influence of rhythmic accents in language evolution has been recognized since the beginning of comparative historical linguistics in the early 19th century. Their often over-riding importance in the history of French phonology is reflected in the organization of most of the great handbooks on the subject (e.g. Nyrop 1914, Fouché 1958, and Pope 1966), which make a primary division of vowels into stressed, partly stressed, and unstressed. The loss of schwa in early Old French, which in most positions was highly sporadic, was nonetheless favoured where the schwa was completely unstressed and in the neighborhood of a particularly heavily stressed syllable. Today, the position of the rhythmic accent has an important effect on the behaviour of schwa after two consonants.

The use of semantic boundaries in descriptions of language development has also been common. Most languages show changes which occur only in "word-final position" or only "within words".[12] Especially important are changes which depend on the presence of a fixed accent as discussed immediately above, since the accent is fixed with respect to some semantic or phonetic-semantic unit such as the word. In the history of Vulgar Latin and Old French (up to 1400 or 1500), when a rhythmic expiratory accent fell on most important words, the word and word-boundaries had a great influence on phonological development. Since that time, as most word-boundaries in French have become obliterated phonetically, many changes can be

described in terms of the position of the items in question within the group or cursus.[13] Thus, Klausenburger (1970, *passim*) defines modern French postpausal consonant clusters as those which occur at the beginning of a cursus and prepausal clusters as those which occur at the end of a cursus. He considers all cursus-medial consonant combinations to be intervocalic clusters or sequences, regardless of whether they occur in word-initial, medial, or final position. To a large extent this is justified, but the occurrence of "intervocalic" consonant groups differs in some significant ways depending on their position in the word. In any case, schwa evolution from early Old French times to the present has been conditioned both by the position of the schwa in the word and by its position in the group; these two units are thus referred to constantly throughout this study.

Each of the three major branches of phonotactics defined here has been and remains important to the development of schwa loss in French. As a result of these influences, schwa loss itself has served to alter the French phonotactic system. The relevance of universal phonotactic factors to schwa loss and vice versa is of particular importance in the case of sound combinations (the first branch defined above). Such factors are introduced in section 1.3.3 below.

1.3.2 - The syllable -

The description and analysis of phonotactic influences on schwa loss involve the use of the concept of the syllable. Syllables are

important in at least two main ways. First, one of the best and most complete methods of describing syntagmatic vowel and consonant patterning is to describe syllable structure; that is, to divide the stream of speech into syllables and then list and classify those sounds and sound groups which can occur as the syllabic peak and as each syllabic margin. This method is adopted, for example, by Fu (1963), Valencia (1966), Pilch (1967), Pulgram (1970), and Klausenburger (1970); also by Vestergaard (1967) who limits his analysis to the patterns found in monosyllables. Second, accent operates over a syllable, so all descriptions which involve the influence of the accent involve the concept of the syllable. Thus, syllables are referred to throughout both the descriptive and theoretical portions of this study, and this section provides the necessary background on syllable theory in general.

Like the word, the syllable is a unit which is used by nearly all linguists but which is very difficult to define. Two main types of definition and characterization have been attempted: phonetic and phonological. In the phonetic type, the syllable is seen as a physical reality with various physical attributes; the more important of the latter are reviewed immediately below. The phonological syllable, by contrast, is seen as a theoretical abstraction useful in the analysis of the phonotactic and prosodic systems of most or all languages.[14] Both conceptions are valuable, and both are used in the present study.[15]

1.3.2.1 - The phonetic syllable -

Syllables have been characterized phonetically in the following four major ways:[16]

(1) As a unit of expiration - In its original conception, this model considered each syllable to be formed by a single expiration (Hála 1961, p. 73). A typical statement of this view is given by Sweet (1877, p. 89, §257): "...the strength of each separate force-impulse, such as we give to the separate syllables of any sound-group, tends to diminish progressively, until a new impulse begins...." However, it soon became clear that a single expiration can, and usually does, involve several syllables (references are given by Hála 1961, p. 73). Nevertheless, each syllable within a single expiratory curve is characterized by a separate expiratory "push". The result is a rhythmic rise and fall in the pressure of air exhaled, with the peaks of pressure corresponding to the syllable nuclei and the troughs to the syllabic boundaries (see Hála 1961, pp. 73-4). Thus, the notion of expiratory syllables is a useful one, although breath curves do not provide the primary characterization of the phonetic syllable, as Stetson (1951, p. 27) argues.

(2) As an acoustic unit (defined using the property of sonority) - The main proponent of this concept is Jespersen (1913, pp. 190-93). He states (p. 193) that a sequence of sounds contains as many syllables as there are relative maxima in sonority: the syllable nucleus corresponds to the peak in sonority while the

syllable boundary falls at a trough. It follows from this that a syllable consists of an initial portion where the sounds are arranged in order of increasing sonority followed by a terminal portion of decreasing sonority.

Jespersen provides a scale of relative sonority (pp. 190-1). The most important phonetic determinant of sonority, he says, is voice: voiceless sounds are much less sonorous than voiced ones. Within each of these two primary divisions, sonority depends primarily on the degree of aperture between the articulations. His scale is as follows:[17]

1(a) Voiceless stops /p, t, k/

(b) Voiceless fricatives /f, s, š/

2. Voiced stops /b, d, g/

3. Voiced fricatives /v, z, ž/

4(a) Nasal consonants /m, n, ɲ/

(b) Laterals /l/

5. [r]-type sounds /r/

6. High vowels /i, y, u/

7. Mid vowels /e, o, ø, ɛ, ɔ, œ, ɛ̃, ɔ̃, œ̃, ə/

8. Low vowels /a, ɑ, ɑ̃/

Semivowels are apparently intended to fall in class 6 with the high vowels. Jespersen notes that this is a relatively gross division, and that finer distinctions of sonority could be made within each class. Very similar scales are given by Sievers (1901, pp. 204-5) and by Roudet (1910, pp. 185-6).[18]

Many authors have accepted the general validity of Jespersen's theory: Hála (1961, p. 75) lists R. J. Lloyd, K. Luick, and Daniel Jones. Others have not, or have expressed reservations based largely on the fact that certain irregularities may be found in some types of syllables. Chief among these is the possibility of sibilants appearing farther from the syllable nucleus than stops, as in French *stade*, *spécial*; English *spade*, *lapse*; and Italian *sbaglio*, *scala*. But, as pointed out by Hála (1961, p. 91), these few exceptions do not in any way detract from the general principle that sounds of the syllabic margins, when they occur, tend to be arranged around the nucleus in order of decreasing sonority.

In this connection, Hála (1961, p. 115) suggests a simplification of the sonority scale to include just three categories:

1. A maximum - the vowels
2. A middle range - the "sonants", that is liquids and nasals
3. Zero sonority - all other consonants.

Such a scale has value in emphasizing that one is dealing with a tendency and not an absolute law. By it, words like *rasp* and *raps* are considered to show the same sonority relationships. In any case, it is the general principle, not any particular way of quantifying sonority, which is important. It will be shown that this concept, together with the characterization of syllables based on aperture, is of great value in the analysis of French schwa loss in certain positions.

(3) As an articulatory unit (defined using the aperture of sounds) - This theory was developed by Saussure (1968, pp. 77-90), and is based on the notion that all syllables consist of an initial explosive portion followed by a terminal implosive portion. The syllable boundary occurs at the point where an implosive chain becomes an explosive chain (that is, the aperture of the vocal organs is at its local minimum); the syllable nucleus or *point vocalique* occurs where explosion becomes implosion (that is, the aperture is at its local maximum) - see pp. 86-7. It follows from these definitions that the explosive portion of the chain must involve sounds arranged in order of increasing aperture, while the implosive portion consists of sounds ordered by decreasing aperture.

Saussure (pp. 71-76) provides a quantification of the aperture of sounds, as follows:[19]

0. Occlusives - /p, b, t, d, k, g/
1. Fricatives - /f, v, s, z, š, ž/
2. Nasal consonants - /m, n, ɲ/
3. Liquids - /l, r/
4. High vowels (including semivowels) - /i, y, u, j, ɥ, w/
5. Mid vowels - /e, ø, o, ɛ, œ, ɔ, ɛ̃, œ̃, ɔ̃, ə/
6. Low vowels - /a, ɑ, ɑ̃/

Grammont (1946, p. 99) suggests that class 4 should be divided into semivowels and high true vowels; as Hála (1961, p. 90) notes, this change is of no real significance. Delattre (1966, p. 153) suggests that the aperture of nasal consonants should be considered to be

less than that of fricatives. This is obviously true if only buccal articulation is considered; but since nasals involve unimpeded passage of air through the nasal passages, it seems reasonable to include this in the calculation and to set their aperture as greater than that of fricatives. In any case the general tendencies of all three scales are the same.

Saussure himself realizes that this theory cannot solve all the problems connected with the characterization of the syllable. His aim is merely to provide "une base rationnelle pour l'étude de ce problème" (pp. 80-81). In his review of Saussure's *Cours*, Grammont (1917, pp. 405-9) points out that there are exceptions to the aperture theory, and quotes among others the Greek forms *kteís* and *stégos*. He argues, however, that such forms are relatively speaking very rare, and precisely the fact that they violate the tendency towards regular increase and decrease in aperture through a syllable helps to explain why they are often found to be unstable. This remark does not help in the case of [sO] before the syllable nucleus or [Os] after it, as such sequences show high stability in some languages (e.g. English). But it is true that, when a phonetic change would lead to a syllable which seriously violates the regular progression of apertures, other changes generally occur such that the unusual syllable is either never produced or is quickly eliminated.

Later on, Grammont somewhat changed his views on syllable structure. In his *Traité* (1946, pp. 96-104), he writes that the syllable based on aperture relationships is the "theoretical" or

ideal syllable (p. 99), and that those exceptions to it must be examined in the light of some other syllabic property. This he finds in the rise and fall in muscular tension, a concept which is discussed as item (4) below.

Delattre (1966, pp. 152-3), in discussing the position of the syllable break in French words of the shape [-VCCV-], states that the most important factor is the aperture of the consonants. The union of the two consonants as the onset of the second syllable is favoured when the aperture of the first is smaller than that of the second (e.g. *appris* [a-pri]), while their separation is favoured in the reverse case (e.g. *harpie* [ar-pi]). Delattre also mentions other factors, such as the articulatory strength of the consonants and their position with respect to the rhythmic accent (pp. 153-5). But the dominant role of the aperture relationships is clear, and it may be noted that these are useful in helping non-native speakers of French to improve their syllabification habits in this language (compare further Delattre 1951, pp. 39-40).

The aperture concept of the syllable has been heavily criticized by a number of authors (compare Hála 1961, pp. 76-7). But as is the case with the theory of sonority, there is no question that the concept is a useful one; it must however be viewed as a tendency in syllable structure rather than as a law. As Hála (1961, p. 104) puts it:

> ...dans la syllabe, il s'agit d'une transition globale de l'état de stricture à celui d'aperture, non pas d'un phonème à l'autre, mais pour l'ensemble des phonèmes composant la partie initiale de la syllabe.

Such a formulation reduces the concept of aperture to its proper place in the phonetic characterization of the syllable: it is an important factor but not the only one.

(4) As a unit of muscular tension - The suggestion that the syllable can be characterized as a stretch of speech involving a single rise and fall in the curve of muscular tension was made by Grammont (1946, pp. 100-4). The initial portion of the syllable (until the nucleus) involves increasing muscular tension, while the tension decreases during the second portion. Whenever a sound spoken with increasing tension follows one spoken with decreasing tension, a syllable break comes between.

This theory was taken up by Fouché (1927, pp. 3-14) and by Sommerfelt (1931, pp. 156-8). The kymographic traces made by Grammont and Fouché support its general validity, but as Hála (1961, p. 79) notes, they do not represent the overall tension of the speech muscles but only that of the larynx.[20] The great difficulty of measuring the former has so far prevented any completely convincing demonstration of the reality of this concept of the syllable. It should be noted, however, that it permits Delattre (1951, p. 18) to account in a simple manner for the readily observed tendency towards open syllables in French as opposed to the tendency towards closed syllables in English (on this, see further below). In fact, the greatest value of the tension concept of the syllable is that it permits a precise description of the position of the syllable break. Such precision

is not possible in the case of the sonority and aperture characterizations.

It is clear that no one of these four factors alone provides an adequate phonetic characterization of the syllable. As early as 1884, Techmer remarked that the unity of a single syllable results from the synchronous rise and fall in intensity of the voice and in the aperture of the vocal organs (see Hála 1961, p. 77). Later authors added other elements to the list. Roudet (1910, pp. 186-7) includes expiration, aperture and sonority; Abélé (see Hála 1961, p. 80) includes intensity, pitch, air pressure, and muscular tension; while Chlumský (1935, p. 101) speaks of muscular tension, muscular energy, sonority, and intensity. Hála (1961, p. 91) notes that it is not reasonable to expect an absolutely regular rise and fall in all properties over the duration of a syllable, but that the vast majority of syllables in all languages *tend* to show such a cycle.

The syllable may be characterized phonetically, then, as a stretch of speech in which expiratory pressure, sonority, aperture in the supra-glottal passages, and muscular tension all rise from a minimum, pass through a maximum (at the peak of the syllable), and then decrease to another minimum.[21] The syllable breaks may be defined in a general way as occurring at the minima of this combined cycle.

The problem of the position of the phonetic syllable boundary is, however, a very difficult one. Consider, for example, words with a single intervocalic consonant (English *rumour*, French

attaque). The consonant obviously falls at the minimum of sonority, aperture, expiratory pressure, and muscular tension, but where exactly this minimum is with respect to the duration of the consonant is not so easy to determine. To put it another way, the minimum could fall before, during, or after the consonant.[22] As noted above, Fouché (1927, pp. 3-14) has shown that the point of minimum muscular tension may to some extent be determined instrumentally, and the position of intervocalic consonants placed with respect to this minimum. Another type of phonetic cue to the position of the syllable boundary appears to be the formant transitions on the vowels in the vicinity of a consonant. Malmberg (1955) presents evidence from speech synthesis which indicates that a sequence like [aga] will be interpreted [ag-a] if there are transitions ("hooks") only at the end of the first vowel, and as [a-ga] if there are transitions only at the beginning of the second vowel. These ideas show great promise, but have not yet been followed up on the scale needed to elucidate the position of syllable boundaries in a wide variety of syntagmatic environments and in many different languages.

Nonetheless, it is beyond doubt that speakers of different languages differ phonetically in the way they divide similar syntagms into syllables. According to Hála (1961, p. 94), R. J. Lloyd and J. van Ginneken came to this conclusion, on impressionistic grounds, early in the 20th century. Very clear instrumental evidence is provided by Delattre (1965, pp. 36-9). He synthesized a sentence containing several [VC#V] sequences (the sentence is "An old Arab

ate an apple"). Depending on the type of formant transitions which occur in the vicinity of the consonant, the syllable boundary is perceived as falling before, during, or after the consonant. Furthermore, transitions giving rise to a mostly open syllable are perceived as typically French, mixed transitions as Spanish, and those resulting in a mostly closed syllable as English and German. These findings are preliminary: Delattre planned to extend his experiments to sequences other than [VCV] and to syllables within words. Nevertheless, they provide objective physical evidence (a) that identifiable phonetic syllable breaks do in fact exist, and (b) that their positions depend to some extent on the precise language involved.

1.3.2.2 - The phonological syllable -

As mentioned above, the phonological syllable is considered to be an abstraction; the sole reason for postulating its existence is that it is found to be useful in phonological descriptions. It is informally defined by O'Connor and Trim (1953, p. 105) as "a structural unit most economically expressing the combinatory latitudes of vowels and consonants within a given language". A more formal definition given by the same authors (p. 122) reads as follows: "...the syllable may be defined as a minimal pattern of phoneme combination with a vowel unit as nucleus, preceded and followed by a consonant unit or permitted consonant combination". Similar characterizations of the phonological syllable are provided by Haugen (1956b, pp. 216) and by Pulgram (1970, pp. 40-1). It is

clear from this definition that the phonological syllable is viewed as a purely phonological (as opposed to morphological, syntactic, or semantic) unit, and that it is posited because it simplifies the description of syntagmatic patterns in specific languages. Such descriptions, then, involve stating the possible syllable structures; that is, showing what phonemes of the language in question can occur as the syllabic nucleus and as any given member of the onset and coda.

Naturally the question of syllabic boundaries arises in any such statement. As Pulgram (1970, p. 40) puts it:

> Since the syllable is...a figura whose only function is syllabic segmentation, its extraction from the utterance amounts to neither more nor less than a determination of its boundaries: the syllable exists, as it were, only for the sake of its boundaries.[23]

The key to the placement of syllable boundaries is the concept, already discussed in section 1.3.1 above, that consonant patterns which occur in postpausal position tend also to occur in syllable-initial position and vice versa, and that prepausal patterns tend to occur in syllable-final position and vice versa. Thus, the first requirement of a phonological syllable cut is that it must, if possible, result in a permissible prepausal consonant or cluster (in syllable-final) followed by a permissible postpausal consonant or cluster (in syllable-initial).

It is conceivable that languages exist where this principle is adequate to determine a unique syllable cut in all types of intervocalic sequences. Generally, however, there is not a perfect

one-to-one relationship between group and syllable-initial patterns on the one hand and between group and syllable-final patterns on the other. Sometimes it is found that certain intervocalic sequences cannot be divided into a prepausal cluster plus a postpausal cluster (they are "undissolvable"). A few sequences of this type occur in Spanish and a sizable number occur in Finnish (see Pulgram 1970, pp. 93-98 and 100-105 for the details). In both cases the situation can be profitably analyzed in terms of a number of historical and social factors. In Spanish, for example, the undissolvable sequences tend to occur in unassimilated loans, many of them learned. It is clear that few languages have very many undissolvable sequences, and that those which do occur tend to be in peripheral portions of the vocabulary.

The most common distributional situation, then, is that more than one syllable division is possible where there is a single intervocalic consonant and in some types of consonant group. The question of how best to divide such sequences has received a great deal of attention. O'Connor and Trim (1953, p. 121) suggest that division should be made on the basis of the frequency of the various syllabic types involved. In English, for example, the sequence [-VCV-] may generally be divided either before or after the consonant (e.g. *ago* [ə-go] or [əg-o]). The decision is based on the number of syllables of the type [V] (12), the number of onsets of the type [CV] (421), and the number of codas of the type [VC] (276) which occur in English. Here, the [V-CV] division is clearly preferred

since the frequency of [V] + [CV] is 433, while that of [VC] + [V] is only 289. This method is adopted by Arnold (1955) in his study of French phonotactics. Its principal drawback is that it requires a time-consuming analysis of all the possible [V], [VC], [CV] etc. in the language under discussion, an analysis which is not otherwise required in a study of consonant patterning.

Haugen (1956a, p. 196) suggests that all intervocalic sequences of a given length should be divided in the same way. He writes:

> It is our hypothesis that there is an optimal point at which the intervocalic clusters can be divided to give a description of phoneme distribution in terms of the syllable. We assume that this will be the same for all clusters of identical length and that it can be stated in general terms for clusters of any length. The basis for this division will be the occurrence of consonants initially and finally....

That is, the point of syllable division for each length of intervocalic sequence is chosen to minimize the number of apparently undissolvable sequences of that length. The method is illustrated for Kutenai syllables in Haugen (1956a, pp. 198-200).[24] The fact that Haugen's method requires a single cut for any given length sometimes results in syllable-final and/or initial clusters which do not in fact occur in word-final and initial positions, where a sequence-by-sequence division would not. Since the single-cut method has no obvious advantages, it must be rejected on the grounds that it results in an unnecessarily large number of apparently undissolvable sequences.

Pulgram has suggested two different methods of making the cut

when more than one is distributionally possible. In 1961, he wrote that the cut in such cases should conform to morpheme boundaries where these exist; for example French *abstrait* would be divided /ab-strɛ/ and French *exprès* would be /ɛks-prɛ/ (Pulgram 1961, p. 315). He adds (footnote 27):

> Morpheme boundaries are not meant to be established etymologically, but occur where they are recognized as such by the speaker (who knows *ab-* and *ex-*, for example, as prefixes because of their substitutability). Equivocal cases of morpheme boundaries lead to equivocal syllabification.

By 1970, Pulgram had changed his mind on this matter, and then proposed a purely phonological solution, which he gives in the form of several syllabification rules (Pulgram 1970, pp. 48-51). The relevant rules may be summarized as a single principle: the division is made such that the fewest possible number of consonants act as the coda of the first syllable (when distributionally possible, then, syllables are to be considered open). Pulgram (1970, p. 47) describes this principle as heuristic, but still attempts to justify it on the grounds that open syllables are synchronically and diachronically favoured over closed ones (pp. 66-75). It is certainly true that open syllables are the more common type synchronically (compare Trubetzkoy 1969, p. 247 and Malmberg 1967, p. 129), but the "diachronic tendency toward open syllabicity" to which Pulgram so confidently refers on pp. 68-71 is fuzzy at best. There is thus no very compelling reason for syllabifying as Pulgram suggests.

In fact, the disagreement among the various authors as discussed above is good evidence that there *is* no clear-cut justification for making a unique syllable cut where more than one is distributionally possible. In such cases it is perhaps better to simply note the various possibilities (for example, English *artist* /artIst/ may be divided /ar-tIst/ or /art-Ist/ but not /a-rtIst/). There would thus be established a typological difference between those languages which have some intervocalic consonant sequences dissolvable in more than one way and those which have some undissolvable sequences. This is after all the important point distributionally.

The phonological syllable, then, is of great value in describing and understanding the distribution of sounds in the syntagm. Despite arguments over how to make the syllable cut in certain cases, all authors are in agreement on the value and basic characteristics of this unit.

1.3.3 - Universals of phonotactic structure -

As noted above, some of the effects of the progressive loss of French schwa over the centuries have considerable relevance to certain universal tendencies in phonotactic organization. The tendencies concerned may be subsumed under three general headings: (1) the concept of the ideal syntagm; (2) syllable-structure theories based on the sonority and/or aperture relationships of the sounds which form the syllabic margins; and (3) detailed inductively-determined universals of syllable structure. Each of these concepts is discussed in turn below.

1.3.3.1 - The ideal syntagm -

The notion that the ideal syntagmatic arrangement of sounds involves an alternation of vowels and consonants is widely accepted. An early reference to the ideal syntagm is found in a 1923 work by Millardet (quoted by Frei 1929, p. 101). Millardet writes as follows:

> La tendance à alléger autant que possible la syllabe en supprimant les éléments qui entravent le mécanisme normal des explosions et des implosions successives, n'est pas illusoire. Sans aller aussi loin que l'arabe qui n'admet pas le contact de deux consonnes à l'intérieur de la même syllabe, les idiomes romans tendent plus ou moins nettement à réaliser un type de syllabe satisfaisant à la fois le sens articulatoire et le sens acoustique par une gradation aussi nette que possible des apertures.

Frei (1929, p. 101) notes that "cette tendance différenciatrice... se manifeste sous deux formes principales, le besoin d'éviter les blocs de consonnes et celui d'éviter les rencontres de voyelles (hiatus)". He then proceeds to illustrate (pp. 102-5) these "needs" by discussing a number of recent changes in French whose effect has been to bring the syntagm closer to a [CVCV...] arrangement.

Trubetzkoy (1969, p. 247) states that it is probable that the only combination of phonemes which is found in all languages is [CV]: a sequence of such combinations forms the ideal syntagm. The latter is referred to also by Martinet (1956, p. 44) and by Jakobson (1960, p. 128).[25] Schane (1972a, pp. 207-10) fits the concept into the generative-transformational model as "the theory of preferred syllable structure".[26]

The concept of the ideal syntagm is undoubtedly useful in understanding certain types of sound change, as Frei notes (see above). However, care must be taken not to push the theory too far. Schane (1972a, pp. 216-8 and 221-3) suggests that changes which add consonant sequences (presumably he would include processes which add vowel sequences) are unnatural from the point of view of syllable structure.[27] This is tantamount to saying that all consonant and vowel clusters are unnatural, a position which is belied by the large number of certain types of such clusters which occur in many languages of the most diverse ancestry.[28] It is more fruitful to accept the principle of the ideal syntagm as an ideal which is completely reached in few if any languages, and then to seek further enlightenment on preferred syntagmatic sequences in a more complex and less general set of universal phonotactic tendencies. The following two subsections aim to do just this.

1.3.3.2 - Sonority and aperture relationships in the syllabic margin -

In section 1.3.2.1 above, it was established that sounds of the syllabic margin tend to be arranged around the nucleus in order of decreasing sonority and of decreasing aperture. From this point of view, a syllable [plart] is natural, while [lpatr] is highly unnatural. This observation is in fact a hypothesis about universal phonotactic arrangements.

This hypothesis is more precise than that of the ideal syntagm, since the former establishes a hierarchy of consonant cluster types while the latter does not. However, as has

already been noted, the sonority-aperture theory does show some exceptions, especially in languages which have syllable-initial [sO-] and/or syllable-final [-Os] clusters. It is still too general, then, to provide a fully adequate picture of universal phonotactic patterning.

1.3.3.3 - Detailed syllable structure patterns -

Realizing the inadequacies of the general theories discussed above, Greenberg (1965) examined the initial and final consonant clusters found in 104 languages from a wide variety of areas. The result of this study is a purely inductive set of universal tendencies in the arrangement of such clusters.[29]

The following is a brief summary of those tendencies which are relevant to the evolution of schwa loss (the numbers are those given by Greenberg):

1,2 (pp. 10-11): Two-member clusters are more frequent than multi-consonant clusters.

7 (p. 15): Among initial clusters, stop + stop combinations are found only where stop + fricative (and usually also fricative + stop) combinations are also found.

17 (p. 18): Initial liquid + obstruent clusters are found only where obstruent + liquid clusters are found.

18 (pp. 18-9): Final obstruent + liquid clusters are found only where liquid + obstruent clusters are found.

19 (p. 19): Voiced semivowels are not followed by obstruents in initial systems or preceded by obstruents in final systems.

The several aspects of schwa behaviour which fit with these universal tendencies are discussed in detail in section 5.4.4.

It is immediately obvious that Greenberg's points 17, 18, and 19 form special cases of the sonority and aperture criteria of syllable structure. Initial [LO] and final [OL] clusters are found, but as predicted they are much rarer than initial [OL] and final [LO]. Some of Greenberg's other observations also fit with the sonority-aperture theory, and hence help to confirm it for absolute initial and final positions. Greenberg himself (1965, p. 29) reflects this when he writes, in summarizing the major conclusions of his study, that: "In relation to the peak of the syllable, combinations are favored in which sonants are closer to the peak than obstruents and in which voiced consonants are closer to the peak than unvoiced."

1.3.3.4 - On the use of phonotactic universals -

A valid universal hierarchy in linguistic organization is of great value in a study of the forces behind various types of linguistic change. If it can be shown that a given change fits with such a hierarchy, then it may be concluded that a tendency of the system to conform better to the universal pattern is at least one of the factors behind the change. By contrast, if the system resulting from a change is less like the universal pattern than was the original system, then it may be assumed that the causes of the change have nothing to do with the universal hierarchy: other forces were strong enough to produce the change in spite of the fact that it ran counter to this hierarchy.

These concepts are applied to the loss of French schwa in this study. Loss patterns which conform to the universal tendencies in phonotactic organization discussed in sections 1.3.3.1 - 1.3.3.3 will be considered to be due in part to the influence of the phonotactic system, and will be examined in that light. Loss patterns which do not fit with any of the three types of universal tendency will be assumed to be due to other forces: these are examined where possible.

The validity of such a procedure obviously depends on the validity of the universal hierarchy used. The hierarchy obtained from the above discussion is above reproach in this matter. The general influences of the ideal syntagm and sonority/aperture relationships in the syllabic margin are known through the analysis of a very large number of languages. Greenberg's tendencies are based on a study of over 100 languages. Thus, in applying the results of these observations to secondary clusters produced through schwa loss in French, there is no danger of circularity. This has not always been true of research into the causes of linguistic change,[30] and as a result the use of universal concepts has acquired somewhat of a bad name with many linguists. But such approaches are necessary if linguistics is to come to a better understanding of the reasons for specific types of language change, since hypotheses on internal pressures in language systems are really nothing but theories of the universal tendencies in the arrangement of such systems. No danger of circularity is involved

in such procedures providing that the reality of the universals employed has been demonstrated empirically through studies of a large number of languages of the most diverse structures and genetic origins.

1.4 - The prosodic and phonotactic systems of Old French -

Since a portion of this study is concerned with the effects of schwa loss on the prosodic and phonotactic structures of the French language, it is necessary to provide a brief description of the condition of these systems at the beginning of the relevant period of schwa loss. Also included in this section is a summary of the changes in French prosody up to the present, as the changing prosodic system is relevant to the description of schwa loss itself.

1.4.1 - The prosodic system -

Early Old French (to about 1100) was characterized by a strong tonic stress, which fell either on the penultimate syllable of all words except clitics[31] (when the vowel of the last syllable was schwa), or on the ultimate (Pope 1966, §170, p. 82; Klausenburger 1970, p. 17). At this time, therefore, words retained their identity in the syntagm, and most conditioned sound changes took their conditioning with respect to the word or the syllable. Only occasionally were changes conditioned over word-boundaries.[32]

As the strong tonic stress gradually weakened through later Old and Middle French, successive words tended to be run together

(Pope 1966, §170, p. 82). By the 16th century the main prosodic unit had become the group. All words within a single group (except the last) lost their accent, and many conditioned sound changes and morphophonemic processes took place independently of word-boundaries.[33]

The conditioning of schwa loss conforms to the general patterns mentioned above. During Period 1 it depended more on position in the word than on any larger unit, although in a few cases a wider context was relevant. Only in Period 2 did position within the group become consistently important; it must be noted, however, that word-boundaries have continued to play a vital role right to the present.

1.4.2 - The phonotactic system -

Two types of phonotactic structures are of major importance to the present study: vowel sequences (hiatus) and consonant groups. Old French hiatus is discussed in the first subsection below, while the Old French consonant clusters and sequences are described in the second. In each case, the main developments up to the present day are summarized, except where they involve the behaviour of schwa. The influence of schwa loss on hiatus and on consonant groups is discussed in some detail in section 5.3.

1.4.2.1 - Vowel hiatus -

Sequences of two syllabic vowels (as in Modern French *réagir* [reažir]) were quite common in 11th and 12th century French. Pope

(1966, §237, p. 108) notes that this was primarily because of the widespread loss of single intervocalic consonants in early Old French. Examples of Old French hiatus include *lion* [liɔn], *fouet* [fue(t)], and *meur* [məyr] (Pope 1966, §§241 and 243, pp. 109-10). Loss or alteration in most vowel sequences like these was rare until about 1200 (Pope 1966, §§237 and 265, pp. 108 and 116; Ewert 1966, p. 99).

Beginning in the 13th century, reduction of hiatus became increasingly common. Schwa in hiatus was generally lost completely (see sections 2.2 and 2.4 for the details), while most other vowels in hiatus underwent one of two types of change:

(1) The first vowel was consonantalized when it was higher than the second. By the 16th century the change from [i, y, u] to [j, ɥ, w] was essentially complete (Pope 1966, §§241 and 267, pp. 109 and 116). Examples include *diable*, *fouet*, *circuit*.

(2) The vowels coalesced into a single long vowel when the two vowels were completely or almost identical, and when countertonic (partly stressed) [a] stood before the stressed vowel. Again, reduction began in the 13th century and was complete in most cases by the 16th (Pope 1966, §242, p. 110). Examples: *chaire* [šɛɛrə] > [šɛ:rə], *coule* [kuulə] > [ku:lə], *gain* [gaɛ̃n] > [gɛ̃n].

These changes resulted in a great reduction in the number of instances of hiatus. The process of reduction continues today (compare Frei 1929, pp. 103-5), and Modern French thus shows relatively few examples of vowel sequences.

1.4.2.2 - Consonant groups -

The consonant clusters and sequences of Old French have been listed and exemplified by Klausenburger (1970, pp. 56-9). Three different types of consonant groups are distinguished: syllable-initial (including postpausal and syllable-initial within groups),[34] prepausal, and medial sequences (where the consonant group is divided between the preceding and following syllables). The different phonotactic types which occur in each of these three positions are as follows:

(1) Syllable-initial - All these are of the type obstruent + [r] or [l]; e.g. [br] *braz*, [fl] *flamme*, [ðr] *pedre*.[35] There are no three-member syllable-initial clusters.

(2) Prepausal - Two-member clusters with the first member [r], [l], [s], [n], or [m], and the second member an obstruent or nasal occur; e.g. [rm] *ferm*, [ls] *chevals*, [sk] *basilisc*, [nt] *cent*, and [mp] *champ*. There are also a number of three-member clusters, with the structure "two-member cluster plus [s] or [t]"; e.g. [rks] *porcs*, [sps] *cresps*, [lst] *chevalst*.[36]

(3) Sequences - The two-member sequences show one of [r], [l], [n], [m], [z], or [s] as the first consonant, and a variety of consonants as the second member; e.g. [rn] *hargne*, [lm] *palme*, [nl] *branler*, [mb] *tomber*, [zg] *esguarder*, [sf] *esforz*. Three-member sequences, consisting of a two-member sequence + [r] or [l], also occur; e.g. [ntr] *entrer*, [lkr] *sepulcre*, [mpl] *emplir*, [rkl] *cercle*.

A striking feature of this system is the relative shortage of syllable-initial cluster types. The syllable-initial subsystem has been greatly enlarged in modern French, especially through the addition of semivowels as a third member (e.g. *trois* [trwa]), and the integration of clusters consisting of [s] + obstruent (e.g. *stade* [stad]). Those additions which are important to the development of schwa loss are mentioned where appropriate in the body of the study.

By contrast, many of the sequences and prepausal clusters of Old French have been reduced (Klausenburger 1970, pp. 61-2). This occurred through the loss of all syllable-final [m, n, s, z] (other word-final consonants were lost too), the vocalization of preconsonantal [l], and the loss of the middle consonant from all three-member prepausal clusters (all these changes were complete by about 1500). The results were (a) loss of all Old French prepausal clusters except some of those in [rC] (e.g. *arc* [ark], *cerf* [sɛrf]); (b) loss of all two-member sequences except those in-[rC] (*salter* > *sauter*, *partir* remains); and (c) reduction of three-member sequences to two-member syllable-initial clusters or to two-member prepausal clusters, except when the first consonant was [r] (*comprendre* [kɔ̃mprɛ̃ndrə] > [kɔ̃prɑ̃dr], *mercredi* remains).

Many of the consonant groups thus lost from Old French have been replaced through the loss of schwa in consonantal environments, and many new ones have been added from the same source. These developments date especially from about 1500, when schwa in

[CəC(C)] and in [Cə#] began to be commonly lost. Thus, a period of reduction of consonant groups (to about 1500) preceded a period of production of new groups. Details of the influence of schwa on these changes are given in section 5.3.

Notes

1. Unstable *e* is also known as "mute *e*"; in French *e muet*, *e caduc* or *e instable*. For convenience, this sound is referred to throughout the present study as "schwa", and is symbolized [ə].

2. The development of schwa in the dialects of the Midi followed an entirely different pattern, and is not discussed in detail in the present study.

3. According to Ewert (1966, §64, p. 57), schwa was pronounced in Old French as a "weakened *e*". Beginning in the 15th or 16th century, pronounced schwas tended to show slight lip rounding (Ewert 1966, §64, p. 57; Fouché 1958, pp. 519-20).

4. Some Late Latin [a] and [o] also gave early Old French [ə]: examples include CĂBĂLLŬM > *cheval*, MĂTŪRŬM > *meur* [məyr], and Gallo-Roman [sodžorn] > [sədžorn] *sejorn* (Pope 1966, §§417, 421, 490; pp. 164, 165, and 185). See also Fouché (1958, p. 508).

5. [a] in the penultimate syllable of proparoxytones was lost, as were all other vowels in this position. Examples (Pope 1966, §250, p. 112): LAZARŬM > [lazdrə] *lasdre*, and BALSAMŬM > [balmə] *baume*.

6. Later, [ə] > [i] before a palatal consonant, hence modern *pavillon*, *champignon* (Pope 1966, §422, p. 165).

7. See also the discussion in Klausenburger (1970, §5.5, pp. 49-50).

8. The one exception to this rule that schwa is not accented is the positive imperative construction (e.g. *Prends-le*), where the schwa of the *le* is normally pronounced with the rhythmic accent.

9. Compare Martinet and Walter (1973, pp. 22-3):

> On désigne traditionnellement comme <<*e* muet>> tout *e* de la graphie qui ne se prononce ni comme [ɛ] ou [e], dans *guerroyer* par exemple, ni comme [a] (dans *femme*), ou qui ne fait pas partie de digraphes ou de trigraphes comme *eu*, *en*, *eau*, etc....

It may be noted that schwa is occasionally spelt *ai*, as in *faisons*, *faisais*, etc.

10. Some authors seem to restrict the term "phonotactics" to the study of sound combinations in the syntagm. For example, Klausenburger (1970, p. 2), refers to "consonant combinations, which constitute the corpus of the phonotactic analyses". The broader definition used in the present study is in keeping with the fact that all syntagmatic influences are intimately related to each other and act together in influencing sound behaviour (for example, morpheme and word boundaries are often vital to a description of the consonant combinations of a language).

11. Linguists are not in agreement as to the definition of the terms "vowel" and "consonant". A number of purely phonetic definitions have been suggested; all these depend upon the greater aperture of vowels as contrasted with consonants. A typical example of this type is found in Jones (1969, p. 23): he defines a vowel as a voiced sound in which "there is no obstruction and no narrowing such as would cause audible friction", while consonants are defined as "all

other sounds". Some linguists distinguish between the terms "vowel/consonant" and the terms "vocoid/contoid" (see, for example, Gleason 1961, p. 340). The former are reserved for sounds which pattern as vowels or consonants respectively: "vowels" function as syllable nuclei and "consonants" as syllable margins (on syllables, see section 1.3.2). "Vocoid" and "contoid" are strictly phonetic terms defined on the basis of aperture. This distinction avoids problems with liquids and semivowels, which are often contoids in pronunciation but vowels in syllabic function, or vocoids but consonants. Another way to resolve this problem is to distinguish more than two groups of sounds according to aperture. This approach normally distinguishes, for Western European languages, stops, fricatives, nasal "consonants", liquids, semivowels, and true vowels. Liquids and semivowels, and sometimes nasals as well, are considered to be between true consonants (stops and fricatives) and true vowels; hence their ability to function as both syllabic nuclei and syllabic margins. The great advantage of this method is that it avoids the necessity to make a unique cut along an axis of variation which shows five or more degrees. It is thus more realistic than a bipartite division, and is in any case necessary in phonotactic work, since open consonants like liquids and semivowels show vastly different syntagmatic patterning from close consonants like stops even in languages where the former never stand as the nucleus of the syllable. For these reasons, this six-part division is used in the present study. The term "vowel", then, refers only to true

vowels (sounds with no friction or contact between upper and lower articulators); while the term "consonant", where used, is a cover term for the other five classes of sounds.

An alternative method of defining "vowel" and "consonant" is purely distributional in nature (see, for example, O'Connor and Trim 1953). This has the disadvantage of removing any link between phonetic properties and distributional behaviour, which is one of the central areas of interest in phonotactic studies.

12. The "word" is a concept which is used to some extent by almost all linguists but which is apparently impossible to define in a fully satisfactory manner. As Martinet (1962, p. 90) puts it, "since there is no way of defining the term 'word' in such a way as to make the definition tally with the naive uses of it, contemporary structuralists are prone to employ it most sparingly and to refuse to set up any universally valid linguistic unit between the moneme...and the sentence." It is clear that "words" do not behave identically in all languages, but it is equally clear that the large number of phonetic and phonological patterns and processes which are influenced by word boundaries in most if not all languages demonstrate the reality of words and make it necessary to take account of them in linguistic analysis.

A useful general definition of the concept "word" is given by Swaminathan (1973, pp. 33-6): a word is "a minimum separable form". He quotes three criteria for separability: (a) a separable

form can stand at the beginning or end of a sentence; (b) it may, within limits, be moved to other positions in the sentence; and (c) other forms may be inserted between two separable forms but not elsewhere. He notes that a form which satisfies *any one* of these three conditions should in general be considered to be a word. Swaminathan is fully aware that this definition does not cover all cases, and discusses some of the difficulties which remain. For a similar although differently worded definition, see Krámský (1969, pp. 67-71).

For the purposes of the French data discussed in this study, there is little practical problem in defining where word boundaries do and do not occur. All the traditional parts of speech, with their inflectional and/or derivational endings, if any, are considered to be separate words. This includes forms whose only vowel is schwa (e.g. *de*, *se*) and purely grammatical forms such as *et*, *pour*, etc. Thus, in the sentence *Il dort sur le banc*, [il] *il*, [dɔr] *dort*, [syr] *sur*, [lə] *le*, and [bɑ̃] *banc* are all considered to be separate words. So are [il] *ils*, [vœl] *veulent*, [travaje] *travailler*, and [dəmɛ̃] *demain* in *Ils veulent travailler demain*.

13. The "group" or "cursus" is a stretch of speech bounded by pauses. It is characterized by a single rhythmic accent and is thus, to a large extent at least, prosodically equivalent to a word or combination of word + clitic(s) as found in languages like English. See Pulgram (1970, pp. 29-32) for a more extensive

general discussion of the concept of cursus.

14. The terms "phonetic syllable" and "phonological syllable" are not used here in the same sense as in Grammont (1946, pp. 97-104). Grammont's "phonological syllable" is based on the aperture of the consonants which compose it, that is on a real physical property. It is "abstract" only in the sense that Grammont idealizes the aperture relationships involved by ignoring certain irregularities. It is more consistent to consider aperture to be one of several phonetic characteristics of syllables, and to reserve the term "phonological syllable" for a true abstraction.

15. It is difficult to agree with Pulgram (1970, pp. 17-8) that syllables defined using purely physical (phonetic) criteria "cannot be referred to for either synchronic or diachronic purposes". For example, certain fundamental differences between the phonetic organization of French and that of English may be understood in terms of a different position of the *phonetic* syllable break (see the discussion towards the end of section 1.3.2.1). It is undoubtedly true that such material should be complemented by an examination of the phonological structure of syllables, but a complete rejection of purely phonetic data is not productive.

16. This discussion is based in part on the very valuable survey in Hála (1961, pp. 73-96). Further details of the development of the theory of the phonetic syllable may be obtained there.

17. In this presentation, the phonemes of French are used as examples. Jespersen's discussion, of course, pertains to sonority in general.

18. Hála (1961, p. 75) notes that the concept of "sonority" has sometimes been imprecisely interpreted. He draws a clear distinction between "sonority" and "perceptibility" (in French, *perceptibilité* or *portée auditive*), and notes that noisy fricatives like [s] and [š] are highly perceptible (or "penetrating"), but not at all sonorous. Thus, Jespersen's placement of these sounds near the sonority minimum is quite correct.

19. Again, the phonemes of French are used to exemplify the classification.

20. Note that Fouché (1927, p. 5) anticipates this criticism, and argues that "le larynx est au fond un *totalisateur* du travail phonatoire".

21. Other items could no doubt be added to this list (compare the enumerations of Abélé and Chlumský given above). But the four factors retained here seem to be the major ones, and in any case provide a phonetic characterization of the syllable which is fully adequate for the purposes of the present study.

22. For more details on this question, and a discussion of the views of a number of scholars, see Hála (1961, pp. 92-6).

23. Hockett (1955, p. 52) has suggested that, in some cases, it is impossible to determine the boundary of phonological syllables (e.g. in English *nitrate*). The statement of Pulgram's just quoted makes it clear that admitting this would be tantamount to rejecting the notion of phonological syllable altogether.

24. As an example, consider the analysis of three-consonant interludes (Haugen 1956a, pp. 199-200). The division [$VC_1C_2C_3$-V] is impossible because vowels never occur in word-initial position. [V-$C_1C_2C_3$V] is rejected because there are 135 medial [$C_1C_2C_3$] interludes but only 28 initial clusters of this type. A division after the first consonant ([VC_1-C_2C_3V]) is not satisfactory because three medial [C_1] do not occur at the end of the word, and many medial [C_2C_3] groups do not occur at the beginning of the word. This leaves the division [VC_1C_2-C_3V] as the best analysis: all medial [C_3] occur in word-initial position, and most medial [C_1C_2] clusters occur in word-final position.

25. Jakobson (1960, p. 128) suggests that the reason for the favouring of the [CV] syllable is that "the best graspable clue in discerning consonants is their transition to the following vowels". A consonant which closes a syllable at least partially lacks such transitions.

26. See also Schane, Tranel, and Lane (1975), who provide experimental evidence that a rule which results in the deletion of a word-final

consonant before a word beginning with a consonant (hence producing a [CVCV...] syntagm) is easier to learn than is a rule which deletes a word-final consonant before a vowel (hence breaking a [CVCV...] syntagm).

27. Schane gives a detailed analysis of certain types of French schwa loss in the light of his ideas on preferred syllable structure. This analysis is discussed in section 5.4.2 below.

28. Speakers of Western European languages are apt to regard sequences of consonants as being more natural than sequences of vowels. This feeling is due to the phonotactic patterns of their own languages, rather than to any general principle that consonants are more combinable than vowels: this is made clear by the fact that some languages (e.g. Annamese) permit vowel sequences but no consonant sequences (Trubetzkoy 1969, p. 247). It does not appear, then, that vowel hiatus is inherently unnatural, but it is certainly quite uncommon in most European languages.

29. On the general validity of his observations, Greenberg (1965, p. 5) writes as follows:

> All assertions made here are to be understood as not claiming any validity beyond this sample. It is, of course, reasonable to conclude that, although exceptions are to be expected with further investigation, they should be few in number and that, therefore, at least a statistical validity for the statements made here can be claimed.

30. An example of the circular use of a substantive "universal" is the physiological explanation for the historical lowering of nasal vowels in French ([ɪ̃] > [ɛ̃], etc.). It seems that this "universal tendency" was based almost solely on evidence from French, and in fact a general examination of nasal vowel systems shows that it is not valid. For a detailed discussion of this problem, see Rochet (1976, pp. 39-51).

31. For the purposes of this study, "clitic" is defined as a word containing no accented (or accentable) vowel (in French, the vowel or vowels of clitics are usually but not always schwa). A word containing at least one vowel which is capable of being accented is referred to as a "full word" or simply a "word".

32. Examples of phonic conditioning over word and clitic boundaries include:

(1) The prosthetic *e* added to words which began with [sC] in Late Latin could be dropped after a word ending in a vowel (e.g. *ta spuse* in *Alexis*, line 53), but not after a word ending in a consonant. This alternation persisted until the 12th century, when the *e*-form was regularized (Pope 1966, §603, p. 217).

(2) In early Old French, the final [n] of *en*, *mon*, *ton*, *son* was frequently labialized before words beginning with labial consonants (e.g. *sum pris* in *Alexis*, line 78; *sum voil* in *Alexis*, line 167) - see Pope (1966, §610, p. 219). For more details on this type of conditioning, see Pope (1966, §§595-624, pp. 215-24).

33. For more details on Old French prosody and the changes it underwent, see Klausenburger (1970, pp. 19-28).

34. Klausenburger adheres to Pulgram's principle of minimum coda (see section 1.3.2.2 above); thus an intervocalic group such as [pr] (e.g. *aprendre*) is considered to fall entirely within the second syllable.

35. The existence of some [#sO] clusters in the French of Period 1 slightly complicates this picture. All Latin [#sO] were lost, largely before the beginning of the historical French period ([#sO] > [#esO] > [#eO] - see Klausenburger 1970, §5.4, pp. 47-9 for the details). However, the [#sO] type began to be reintroduced already in the Old French period, through the acquisition of vocabulary directly from Latin. Examples of such early borrowings, with the dates of first known usage (Robert 1973): *spécial* (1190), *spéculatif* (1265), *statue* (1120), *stipuler* (1231), *scandale* (1050), *scolaire* (12th c.). The clusters [#sf] and [#sm] first appeared in the 16th century, and [#sn] in the 19th. Thus, while [#sp], [#st], and [#sk] were known in Period 1, they should probably be considered marginal at that time, especially since their appearance was limited to learned or semi-learned words. At the beginning of Period 2, this class of clusters quickly became fully integrated in Standard French through the massive borrowing of Latin and Greek forms and through the loss of schwa; and it remains solidly integrated today. (On the notions of marginal, integrated, etc. consonant clusters, see Vogt 1954 and Pulgram 1970, pp. 90-105.)

36. On these three-member clusters, Klausenburger (1970, p. 58, note 170) writes: "These are clusters of late GR [Gallo-Roman], probably of the 7th and 8th centuries. By the OF [Old French] literary period, they may or may not have already been simplified to two-member clusters".

Chapter 2

Loss of Schwa in Period 1 (9th c. - 1500)

2.1 - Introduction -

As noted in Chapter 1 above, the data on schwa loss during Period 1 are entirely indirect. They come especially from forms in manuscripts which were spelt without an etymological *e*. Two types of evidence from poetry are also useful: syllable counts, and rhymes between a form which never had a final schwa and one which did (in the latter case it is reasonable to assume that the schwa had been lost, even when the word is still spelt with the final *e*).[1]

There exists little explicit evidence on the style or type of language represented by the manuscripts of this period. However, since all medieval authors were comparatively well educated, any spelling or rhyme innovations in their works must have represented sound changes which had already occurred in educated and relatively careful speech. Such innovations were not affected by any known artificial prescriptive rules such as appeared during Period 2, when grammarians attempted to codify and improve the language. Thus, when a spelling without schwa is observed in a given environment at a given date, it is assumed that the loss of schwa had become possible in that environment at or slightly before that date, in the natural but careful speech of educated Frenchmen. Virtually no information is available on the speech of the uneducated classes.

This procedure does not take account of certain problems involved in the interpretation of medieval texts. Differences in schwa behaviour among different versions of the same work, and difficulties arising from the copying of original texts by scribes from different regions and eras than the author are for the most part ignored. Such details are not of great relevance to this chapter, since the aim is to describe the *general* patterns of schwa loss during Period 1.

Texts bearing evidence of schwa loss come from all over Northern France and from England. Few major geographical dialect differences occur; those which are of significance are discussed as appropriate in the text of the chapter.

Loss of schwa during Period 1 is discussed below in seven sections, according to the syntagmatic environment involved. The chapter concludes with a discussion of two theoretical topics: the grammatical conditioning of early schwa loss in certain positions, and the phonotactic importance of loss to 1500.

2.2 - Schwa in elision contexts -

Elision was the loss of the vowel of a clitic or a word-final vowel, where the following word began with another vowel and was closely linked to the schwa-bearing form.[2] Such losses had already occurred in Latin[3] and Gallo-Roman times, and are common in all French texts from the time of the Strasburg Oaths (842) (see Nyrop 1914, §§280-3, pp. 274-8; Pope 1966, §§273-4 and 604,

pp. 118-9, 218; and Clédat 1931, p. 67).[4]

One of the commonest types of elision occurred in monosyllabic proclitics (type [Cə]).[5] Examples:

d'ist di (*Strasburg Oaths*, line 8)[6]

Qu'elle (*Eulalie* - about 880, line 6)

Il l'exaltat e l'onorat (*St. Léger* - 10th c., line 45)

m'apresset (*St. Alexis* - 11th c., line 59)

Que j'aveie (*Chanson de Roland* - early 12th c., line 2406)

The final schwa of full words could also be lost when there was an intimate link with the following word. Examples:

Ell' ent (< elle - *Eulalie*, line 15)

in su' amor (< sue < SUA - *St. Léger*, line 3)

Ciel' ira (< ciele, variant of cele, now replaced by "cette" - *St. Léger*, line 105)

parfit' amor (< parfite - *St. Alexis*, line 68)

josk'as (= jusqu'à les - *Pèlerinage de Charlemagne* - mid 12th c., line 269)

Doublets of many adverbs and prepositions were formed because of elision. According to Pope (1966, §274, pp. 118-9), *arrier* < *arriere*, *derrier* < *derriere*, *seur* < *seure*, *encor* < *encore*, *or* < *ore*, *onc* < *onque*, *(i)lor* < *(i)lore*, and *mar* < *mare* were all originally prevocalic forms, where the schwa was lost due to elision (the author does not give specific textual examples of any of these words). Fouché (1958, pp. 512-3) agrees that this was "probably" the origin

of such shortened forms. At first, then, the variant without -*e* occurred before a vowel and that with -*e* occurred before a consonant. However, in some cases the former were generalized very early to pre-consonantal position. Examples of this from the *Chanson de Roland* are given by Pope (1966, §604, p. 218): *sur' sun escut*, *unc' mais*, *unc' ne*, *or' veit*, and *or' remaint*. The forms with final -*e* continued to appear along with the elided forms throughout Period 1 and beyond.

Some exceptions to the pattern of elision occurred. Nyrop (1914, §282, pp. 276-7) considers that these were "surtout d'ordre logique", often involving the maintenance of the full form of a proper noun:

De Hostedun evesque en fist (*St. Léger* - 10th c.)[7]

Li dus Williame est en... (*Roman de Rou* - mid 12th c.)

Nyrop notes that the same sort of schwa retention occurs today (e.g. *Les ateliers de* [də] *Edouard Guillaume*). Apart from these few exceptions, however, elision of schwa at the ends of words and clitics before another closely connected word beginning with a vowel was the rule from early Old French on.

2.3 - Schwa in word-final syllable after a vowel -

In early Old French, schwa occurred immediately following a stressed vowel, both in absolute word-final position (e.g. fereie, espee) and before one or more pronounced consonants (e.g. dient, dormoies).[8] The earliest losses in this position were as follows: (1) *aiet* > *ait* ([aiəθ] > [aiθ]) as the 3rd person singular present

subjunctive of *avoir* (Fouché 1958, p. 512; Pope 1966, §953, p. 360). Fouché states that the *ait* form appeared "de très bonne heure", although the old *aiet* continued to occur. (2) *-eiet* > *-eit* ([eiəθ] > [eiθ]) as the 3rd person singular ending of the imperfect indicative (Fouché 1958, p. 512; Pope 1966, §917, pp. 346-7). According to Fouché, this change was regular by the time of *St. Alexis* (11th century). Pope indicates that both changes were analogical, based on the form of the 3rd person singular present subjunctive of *être* (*seit* - [seiθ]).

Aside from the changes listed above, which were found throughout Northern France, loss of schwa in word-final syllable began earliest in Anglo-Norman (Pope 1966, §§1133 and 1292, pp. 438, 474; Nyrop 1914, §253, pp. 250-2). Pope says that the schwa "was ordinarily effaced in the course of the later twelfth and early thirteenth centuries" (§1133, p. 438), and that the loss occurred first after a stressed [e] or [ɛ]. Examples include *espeɇ*, *vraiɇ*, *finiɇ*, *rouɇ*, *ruɇ* (no references are given by Pope). Etymological schwa occurred also in some forms of the present indicative and subjunctive, imperative, and imperfect tenses (for details see Pope 1966, §1292, p. 474). Loss in these forms "began in the later twelfth century" and was general in the thirteenth (Pope 1966, §1292, p. 474), e.g.:

fereiɇ (*Oxford Psalter* - mid 12th c.)

requerraiɇnt, esmaiɇ, vouɇ (*Adgar* - late 12th c.)

diɇnt, poɇnt, esmaiɇnt, seiɇnt (*Chardri* - early 13th c.)

Pope notes that in late Anglo-Norman some forms with an *-e* in this

position were reintroduced under continental influence. This shows that the loss was not far advanced on the continent at a time when it was essentially complete in England.

On the continent, widespread loss occurred first in the 13th century, in the 1st and 2nd person singular and 3rd person plural endings of the imperfect indicative (Pope 1966, §§271, 915, and 917, pp. 117, 345, 346-7; Fouché 1958, pp. 517-19; Nyrop 1914, §253, pp. 250-2). This loss was promoted by analogy with the 3rd person singular imperfect indicative ending. Using *dormir* as an example, *dormoie* > *dormoi*, *dormoies* > *dormois*, and *dormoient* > *dormoint* under the influence of *dormoit*. Fouché gives the following examples from the *Poème Moral* (early 13th c.): *porroiɇ ge*, *sarroiɇ*, *voldroiɇ*. According to Pope, the reduction began earliest in the northern region.[9] Loss of schwa also occurred in the same person/number forms of the present subjunctive of *avoir* (*aiɇ*, *aiɇs*, *aiɇnt*, apparently under the influence of the 3rd person singular *ait*) and *être* (*soiɇ*, *soiɇs*, *soiɇnt* due to *soit*) - see Pope (1966, §271, p. 117) and Fouché (1958, p. 517). The old *e*-containing forms of all these verbs continued to appear down to the 16th century.

Textual examples of loss of *-e* in non-verbal forms become common only in the later 15th century (Fouché 1958, pp. 517-9; Pope 1966, §271, p. 117; Meyer-Lübke 1913, §144, pp. 116-7). In Villon's *Testament* (about 1461), for example, Pope found 41 cases of post-vocalic final schwa showing syllabic value to 6 where it

does not. The form *eäue*, however, is always monosyllabic in Villon, and works by this author contain two rhymes which show loss of *-e*: *oue* (< AUCA) with *ou*, and *Troies* with *trois*. Pope notes that, in the 16th century, loss of schwa in all word-final contexts after a vowel was accepted in educated speech and in poetry (syncope of such schwas in poetry was explicitly recommended by Ronsard in his *Art poétique* - see Thurot 1881, pp. 167-8). As Fouché states, the popular language was undoubtedly less conservative, so it may be concluded that this change was essentially complete by the end of the 15th century.[10]

2.4 - Schwa within a word, before or after a vowel -

Three sub-environments may be distinguished here: (1) The first syllable of the word, before a vowel (e.g. *seur*, *veis*); (2) A non-initial syllable, before a vowel (e.g. *armeure*, *pecheeur*); and (3) A non-initial syllable, after a vowel (e.g. *prierai*, *paierai*). Most authors divide their discussion of loss in this overall position by these sub-environments, but the change occurred about the same time in all of them.[11]

Again, the change in this position took place earlier in England than on the continent. Fouché (1958, p. 516) notes two examples of loss of schwa after a vowel from the *Cambridge Psalter* early 12th century): *deveȩras* and *enveiȩrad*. Pope (1966, §1132, p. 438) states that schwa was "ordinarily effaced in the course of the later twelfth century". She gives the following examples

(§§1132, 1288, and 1289, pp. 438, 473), arranged here by sub-environment:

(1) vɐu (*Gaimar* - mid 12th c.; and *Thomas* - late 12th c.)
sɐur, jɐuner (*St. Edmund* - late 12th c.)
vɐissiez (*Fantosme* - late 12th c.)
fɐister, prɐimer, dɐister (*Chardri* - early 13th c.)

(2) vestɐure, emperɐur, prechɐur, alɐure (*Quatre Livres* - late 12th c.)

(3) bonuɐrez (*Quatre Livres*)
saluɐrez (*St. Edmund*)

A non-etymological *e* was sometimes added to verb forms according to patterns (1) and (3). Examples of this inserted *e* before a vowel were *preit*, *deut*, *eut* (perfect forms - no specific reference is given). After a vowel, *e* was added in *escundierai* and *plaiera* (both found in *Boeve* - mid 13th c.). Almost certainly this *e* was purely orthographic and constituted a hypercorrection, reflecting the loss of schwa from the pronunciation: authors did not know which forms took a written *e* since this was never pronounced. Just as in word-final position, a written *e* was sometimes reintroduced into later Anglo-Norman texts under continental influence.

On the continent, schwa loss began about the end of the 12th century, but was not complete until much later. There is some evidence that the change began in the northern (Picard) area: Nyrop (1914, §264, pp. 259-60) refers to examples showing loss of schwa before vowels in *Huon de Bordeaux* and *Aiol* (both early 13th

century), and Pope gives examples from *Aucassin et Nicolette* (early 13th century, see below). But in any case loss did not begin much earlier in the north than in the other areas where the langue d'oïl was spoken.

For loss of schwa before vowels, the following early examples are given:

(a) by Nyrop (1914, §264, pp. 259-60) - s*e*eler, march*e*ant, v*e*ez (*Orson de Beauvais*, late 12th or early 13th c.)

(b) by Pope (1966, p. 488) - vest*e*ure (*Aucassin et Nicolette*, early 13th c.)

(c) by Paris (1896, p. 323) - ben*e*içon, m*e*isme, j*e*uner (*Saint Benoît*, about 1200).

Fouché (1958, p. 517) quotes the following 13th-century examples of loss of schwa after a vowel (no specific sources are given): *oubli*e*rai*, *cri*e*rai*, *pri*e*rai*, *pai*e*rai*, *vrai*e*ment*, *aise*e*ment*, *prive*e*ment*, *aveugle*e*ment*.

The forms with spelled *e* continued to appear into the sixteenth century, side by side with *e*-less forms. For schwa before a vowel, Nyrop (1914, §264, pp. 259-60) quotes the following examples of alternations from the northern text *Bastart de Bouillon* (14th century): *armeure/armure*, and *mescheance/meschance*. Nyrop (1914, §272, pp. 264-5) also states that schwa after a vowel sometimes counted for a syllable in 15th and 16th century poetry and sometimes did not.

Despite the orthographic persistence of *e* into the 16th century,

it does not appear that schwa in this position was ordinarily pronounced beyond 1500. As regards schwa before a vowel, Fouché (1958, p. 516) states bluntly that "Les formes du XVI^{e} siècle telles que *feis*, *meis* etc. doivent ...être lues *fis*, *mis*, etc." Meyer-Lübke (1913, §142, pp. 115-6) agrees that loss before a vowel became regular during the 15th century. For schwa following a vowel, Fouché (1966, p. 517) and Pope (1966, §270, p. 117) state that loss was general by the early 16th century and that schwa-less forms were accepted by the grammarians of that century. Their acceptance suggests that loss was very usual somewhat earlier. Thus the loss of schwa before or after a vowel within words may be considered to have been complete by the end of the 15th century.

2.5 - Schwa in word-initial syllable, between consonants ([#CəC]) -

According to Fouché (1958, p. 510), sporadic loss of schwa in [#CəC] occurred in the earliest French texts. The forms involved were *vərai* and *fərai* (other forms of *faire* were apparently not affected at this stage). At first, loss occurred only when these words were the second member of a close-knit sequence (*si ferai*, *non ferai*, *jo ferai*). In such a combination, instead of being secondarily stressed as they would normally be in word-initial position, the schwas were extremely weakly stressed (they fell in the pretonic syllable of a three-syllable nexus, or phonetic word),[12] and for this reason they were susceptible to loss. At this stage, the *e*-containing forms occurred in all other environments. Slightly later, the alternations *vrai/verai* and *frai/ferai* were

eliminated by generalization of *vrai* and *ferai* (in central French).[13] The shortened *frai* survived only in Picard, Wallon, and Anglo-Norman. Other authors agree that loss in *verai* and *ferai* was early, but perhaps not quite so early as Fouché says. Meyer-Lübke (1913, §132, pp. 111-2) states that these schwas have been lost since the 11th century, while Pope (1966, §247, p. 111) refers to loss as beginning in later Old French (which she defines as extending from 1100 to 1300). In any case, it should be noted that the loss was highly sporadic.

Later in Period 1, schwa in word-initial syllables was more frequently lost, although examples occur only from the environments [#OəL-] and [#Oəw-] (with one exception). Gossen (1970, p. 91) provides some examples from Picard texts:

pɛ́ril, pɛ́reche, vɛ́nue (*Chevaliers*)

fɛ́ru (*Huon de Bordeaux* - early 13th c.)

Fouché (1958, pp. 514-6, 523) lists the following examples, taken from the period beginning about 1200 and ending in the middle of the 15th century (no specific references are given): *bɛ́luteau*, *bɛ́later*, *bɛ́louse*, *pɛ́lote*, *bɛ́rouette*, *tɛ́riacle*, *fɛ́roncle*, *chɛ́oir*, *vɛ́oir*.

At the end of Period 1, loss in [#CəC] was far from complete. It was largely limited to cases where the schwa was preceded by an obstruent and followed by a liquid or semivowel, and even there the old schwa-containing forms continued to appear well into Period 2. Schwas which stood between two obstruents (e.g. *cheval*, *dessus*, *cepɛndant*) were essentially unaffected until at least the late 15th

century. On the increasing loss of schwa in this position beginning about 1500, see section 3.4 below.

2.6 - Schwa in word-medial syllable, between consonants ([CəC]) -

Loss here began about 1000, in words where the schwa was preceded or followed by a liquid. Fouché (1958, pp. 510-12) cites *dunrai* (future of *donner*) from *St. Alexis* (11th century), and suggests that schwa loss in futures and conditionals of *donner*, *mener* and their derivatives (e.g. *pardonner*, *amener*) must have been quite general in the 11th century.[14] Fouché also states that schwa loss was very early in *denrée*. Pope (1966, §272, p. 118) agrees that loss had occurred in these forms by 1100. To these examples, Meyer-Lübke (1913, §132, pp. 111-2) adds the following (from the 11th century): *merveille*, *serment*, *parvis*, *dernier* < *derrenier*, *larcin* < *larrecin*, *corcier* < *correcier*, and *albastre*. Loss at this early stage was highly sporadic.

Examples became much more frequent in later centuries. Fouché (1958, pp. 510-12) refers to loss of schwa in [rər] in future forms of verbs, beginning in the 12th century in Anglo-Norman (*esperrat* in the *Oxford Psalter*). Such forms made their appearance in central French in the 13th century: Fouché cites *durra*, *demorra*, *plorra* from *Rustebeuf* (mid-13th century) and *jurra*, *mesurront*, *restorra* from the *Livre des Mestiers* (not before the 14th century). Koschwitz (1889, p. 33) cites *demourrai* and *lairrai* from this same general period, but without specific reference. Among non-verbal forms, Fouché gives *mairie* < *mairerie*, and *derrain*. Loss of schwa in

[rər] is particularly interesting, because some authors insist that loss of schwa was and still is inhibited between identical consonants (see the discussion in sections 3.9 and 4.8). These very early losses in [rər] indicate that no such inhibition pattern existed, at least for schwa between two [r], during Period 1.[15]

All of the above examples involve loss of a schwa which was either preceded or followed (or both) by a liquid. Other examples of this type are given by Fouché (1958, p. 514-16) from the period 1200 to the middle of the 15th century. These include *carfour* < *carrefour*, *salmandre*, *bourlet* < *bourreler*, *reguelisse* [rəglis], *chapron*, *matras*, and *palfrenier*.

Loss of word-medial schwa was also fairly common before a semivowel. The following examples are available:

(a) From Pope (1966, p. 488) - *benoois* [bənwe]
(*Aucassin et Nicolette* - early 13th c.)

(b) From Nyrop (1914, §264, pp. 259-60) - *maloite* [malwet]
(*Bastart de Bouillon* - 14th c.)

(c) From Fouché (1958, p. 523) - *dechoir* [dešwer], *assoir* [aswer] (no references given)

The only word in which schwa was lost between obstruents in Period 1 was *soupcon* < *souspecon*, which is attested from the 13th century (Fouché 1958, p. 516).

Very occasionally, loss of schwa occurred after two consonants: in all cases the final consonant of the resulting three-member sequence was a liquid. Fouché (1958, pp. 514-5) cites *surplis* and

espørit; he adds that in Anglo-Norman, Picard, and Wallon the schwa was sometimes lost in future and conditional verb forms after two consonants (e.g. *portøra*, *gardøront*, etc.), but that such losses were unknown in Central French during Period 1 (see also Fouché 1967, p. 391). Herzog (1913, §210, pp. 205-6) adds *quartøron*, *portørai*, and *remarquørai* (it is probable but not certain that Herzog means that these occurred during Period 1 - the reference is vague).

As was the case in [#CəC], schwa loss in word-medial position between consonants was far from general at the end of Period 1. It was found between obstruents in only one word, and even in the environment of a liquid it was not complete. Further loss of schwa in medial position is discussed in section 3.2.

2.7 - Schwa in word-final syllable after a consonant ([Cə#]) -

The earliest loss in [Cə#] occurred in the third person present subjunctive forms of certain verbs. The following show the change relatively frequently (Fouché 1958, pp. 512-13; Pope 1966, §955, pp. 360-1): *poeir* - *puist* < *puisse*, *trover* - *truist* < *truisse*, *rover* - *ruist* < *ruisse*, *doner* - *doinst* < *doinse*, *aller* - *voist* < *voise*. Several other verbs occasionally showed the change. According to Pope, the final *s* and *t* of the new forms both were pronounced, hence [pyist] etc. Fouché says that the new forms were common by the end of the 12th century; Pope qualifies them only as "early".

Pope states that these forms were analogical, formed on the model of the corresponding forms of *être* and *avoir* (*seit* and *ait*). She adds that *puist* was the first new subjunctive thus formed and that it

influenced the formation of the others. The presence of the [t] supports the notion that the process was analogical, since there was no general change in Old French which involved the addition of a word-final [t]. None of these analogical forms survived into Middle French (Pope 1966, §955, pp. 360-1) - either they were replaced by the original subjunctive (e.g. modern *qu'il puisse*), or they merged with the indicative (e.g. *qu'il trouve*, *qu'il donne*).

Apart from these early examples, loss of schwa in word-final syllable after a consonant did not begin on the continent until the later 15th century at least (see below). In Anglo-Norman, however, such loss began much earlier (Pope 1966, §§1135 and 1293, pp. 438, 474). The first forms to show the loss were imperatives like *aur* and *gard* (in the *Cambridge Psalter*, mid-12th c.). The change became common in the 13th and 14th centuries. Words with and without etymological final schwa were grouped together in the same laisse in *Boeve* from the mid-13th century (e.g. *derere* and *eyre* with *destrer* and *mounter*), and in *Bozon* from about 1300 (e.g. *sens* with *il pens* < *il pense*, and *mal* with *sal* < *salle*). Other examples include *confounde* and *onte* from *Boeve*. In the 14th century, hypercorrections occurred also (e.g. *batte*, *mette*, *voile* for *bat*, *met*, *voil* from *Bozon*). It thus appears that loss of schwa in this position was more-or-less complete in the 14th century.

According to Pope (1966, p. 492, §vi), continental loss began in the northern region (Wallonia and Picardy). Word-final schwa after a consonant in that area "appears to have been no longer pronounced in the fifteenth century", but she gives no details. In central French,

this schwa remained stable into the 16th century, and therefore it will be discussed in the next chapter.

2.8 - Schwa in clitics -

Schwas, and possibly other vowels as well, were lost from clitics in two patterns other than elision (for the latter, see section 2.2 above). Evidence for loss in both these patterns comes from the orthographic elimination of the vowel and attachment of the consonant of the clitic to the preceding word.

The first pattern involved the sequence preposition + article + noun beginning with a consonant, with the vowel of the article being lost (Nyrop 1924, §§500-2, pp. 372-5). The forms involved, with examples, are:

a + *le/lo*[16] > *al*, later *au*; e.g. *al tirant* (*St. Léger* - 10th c., line 191)

a + *les*[17] > *als*, later *as*;[18] e.g. *Tornés als altres* (*St. Léger*, line 206), *as poverins* (*St. Alexis* - 11th c., line 100)

de + *lo* > *del*, later *deu* and *du*; e.g. *Fors del sacrarie* (*St. Alexis*, line 293)

de + *les* > *dels*, later *des*; e.g. *dels sanz* (*St. Léger*, line 3)

en + *lo* > *enl*, later *el* and *eu*;[19] e.g. *enz enl fou* (*Eulalie* - about 880, line 19), *el paradis* (*St. Alexis*, line 544), *eu prael* (*Joinville* - about 1300, section 97)

en + *les* > *enls*, later *els* and *es*;[20] e.g. *els porz de mar* (*Alexandre* - about 1100, line 36), *es bons* (*St. Alexis*, line 327), *es cartres* (*Chanson de Roland* - early 12th c., line 1684)[21]

The second pattern consisted of a word ending in a vowel + a personal pronoun + a word beginning with a consonant. The personal pronouns involved were *me*, *te*, *le/lo*, *les/los*, and *se*: their vowel was lost (Nyrop 1914, §293, p. 289). Examples:

Poros (< poro se) furet morte (*Eulalie* - about 880, line 18)
Sis (< si se) penteiet (*Jonas* - 10th c., line 38)[22]
Semprel (< sempre lo) mist (*St. Léger* - 10th c., line 22)
A luis (< lui les) tramist (*St. Léger*, line 86)
Porqueim (< porquei me) fuis (*St. Alexis* - 11th c., line 453)
Sim (< si me) cumbatrai (*Chanson de Roland* - early 12th c., line 878)

For the first pattern, the shortened forms *au*, *du*, and *des* have become standardized in the spelling; the others have been replaced as described in notes 18, 19, and 20. In the second pattern, however, the spelled vowel has been restored and the clitics are written separately (*Pourquoi le dis-tu?*). The vowel here was never written before the 12th century, but from that time onward it appeared more and more frequently (Nyrop 1914, §293, p. 289).

These schwa losses are unusual with respect to other losses in consonantal environments (see the three preceding sections), in that they became regular very early in Old French. Such loss likely was favoured by the very weak stress on the clitics within the larger

phonetic word. While it is impossible to be sure of the exact prosodic structure of phrases like *de les sanz* in Gallo-Roman or early Old French, the article formed either the final unstressed syllable of a two-syllable phonetic word [déləz sə̃ndz] or the final syllable of a complex proclitic [dələzsə̃ndz]. In either case the stress on the article was extremely weak. The influence of stress on schwa loss in this position is but one of many instances where it played a decisive role in the phonetic evolution of Old French.

2.9 - Conclusion -

2.9.1 - Summary of schwa loss to 1500 -

Schwas which stood immediately before or after a vowel were regularly lost by the end of the fifteenth century. The sub-environments discussed in sections 2.2 - 2.4 above are:

(a) Schwa in a clitic or in word-final position before another word beginning with a vowel (elision), e.g. *qu'elle*

(b) Schwa in word-final syllables after a vowel, e.g. *espee*, *dient*

(c) Schwa within a word, e.g. *seur*, *pecheeur*, *prierai*.

Orthographic persistence into the sixteenth century of some *e* in sub-environments (b) and (c) was almost certainly artificial: it did not reflect the continued pronunciation of schwa in everyday standard speech.

By contrast, loss of schwa in consonantal environments was in general incomplete at the end of the fifteenth century. The only exception to this pattern was schwa in the article of the syntactic

sequence preposition + article + noun (e.g. *al tirant* < *a le tirant*) - see section 2.8. Between consonants within a word (e.g. *peril*, *serement*), and in word-final position after a consonant (e.g. *salle*), schwa was frequently retained in ordinary speech well into Period 2. The phonotactic significance of the earlier loss of schwa in the vicinity of a vowel than in cases where a consonant cluster would be produced is discussed in sub-section 2.9.3 below.

2.9.2 - The influence of analogy on schwa loss during Period 1 -

The discussions in this chapter reveal that analogy played a significant role in promoting the initial stages of the process of schwa loss in word-final syllables, both after a vowel and after a consonant (see sections 2.3 and 2.7 respectively). Change here occurred earlier and more frequently in a few verb forms, where analogical relationships with *e*-less forms existed, than in other words. The following are the forms involved:

(1) *aiet* > *ait* and *-eiet* > *-eit*, under the influence of *seit*

(2) *-oie* > *-oi*, *-oies* > *-ois*, and *-oient* > *-oint*, under the influence of *-oit*

(3) *aie* > *ai*, *aies* > *ais*, and *aient* > *aint*, under the influence of *ait* - the same *ait* produced in change (1) above

(4) *soie* > *soi*, *soies* > *sois*, and *soient* > *soint*, under the influence of *soit*

(5) *-se* [sə] > *-st* [st] under the influence of *seit* and *ait*.

All of these new forms were common by 1200 or shortly thereafter. By contrast, loss of schwa in word-final syllables became general throughout the vocabulary only in the 15th century (after a vowel) or

the 17th century (after a consonant - see section 3.3. below).

It seems, then, that schwa loss in word-final syllables began as a morphologically determined sound shift; that is, the change was conditioned by the grammar. The conditioning was later relaxed, until the change became phonetically regular. Grammatical influence of this type is relatively common in the evolution of languages,[23] although it is ignored by an approach to historical linguistics which considers only the starting and ending points of a "regular sound change". The importance of evaluating *all* the factors involved in a linguistic change is discussed further in section 5.2 below.

2.9.3 - The phonotactic relevance of schwa loss during Period 1 -

There are three items among the schwa loss patterns discussed in this chapter which are interesting from a phonotactic point of view. First, loss took place much earlier, in general, when the schwa was in contact with a vowel than when it was surrounded by consonants or stood in word-final position after a consonant. Second, loss between consonants in the first syllable of a word was favoured between [O] and [L] or [G]. Third, loss of schwa in word-medial position between single consonants was to all intents and purposes blocked between two obstruents.

The favouring of schwa loss in vocalic environments fits with the theory of the ideal syntagm (section 1.3.3.1 above): [CVV(C)] sequences were replaced by [CV(C)] sequences. This statement is not meant to imply that loss of schwa before or after a vowel was *caused* by pressure to eliminate [VV] sequences, as Schane (1972a, pp. 222-3) apparently

claims.[24] Rather, it should be observed that the loss of such schwas could not be *impeded* by phonotactic factors. It is not reasonable to consider the latter to be the active cause of the change because the hiatuses represented by [Və] and [əV] sequences had existed for many centuries before schwa loss began. The privileged position of the [CVCV...] syntagm is thus to be viewed as a passive "cause" or conditioning factor which, given the pressure toward the loss of unstressed vowels in the French of Period 1,[25] resulted in earlier loss in the environment of a vowel than elsewhere.

The favouring of loss in [#CəC] when the first consonant was an obstruent and the second either a liquid or semivowel is reasonable in the light of the sonority and aperture theories of syllable structure (see section 1.3.3.2): [#OLV] and [#OGV] conform strictly to these models of the "ideal syllable", while such types as [#OOV] and [#LOV] do not. Also relevant here is Greenberg's cluster arrangement tendency number 17 (section 1.3.3.3): [#OL] clusters are more common than are [#LO] clusters. Again, these universal tendencies are to be viewed as conditioning factors in the general loss of schwa. Given a pressure toward the loss of schwa between consonants in the first syllable of words, it is understandable that this should have been favoured in [#OəL] and [#OəG].

The restriction of schwa loss in word-medial position between two obstruents may be understood in terms of the theory of dissolvability (section 1.3.1 above): intervocalic [OO] groups could not, during Period 1, be divided into a syllabic coda which occurred also in word-final position, followed by a syllabic onset which occurred also in

word-initial position.[26] By contrast, all the intervocalic groups which *were* produced by Period 1 schwa loss from [CəC][27] could be so divided. In other words, all the consonant groups resulting from loss were dissolvable. For further discussion of this matter, see section 5.4.1.

Notes

1. The discussion in this chapter is derived entirely from the standard manuals on the history of French (especially Meyer-Lübke 1913, Nyrop 1914 and 1924, Fouché 1958 and 1967, and Pope 1966).

2. Such close syntactic links occurred, for example, between a pronoun subject and its verb, and between a determiner or adjective and the head noun modified.

3. Latin examples of elision include ANT'ILLUM < ANTE ILLUM, ECC'ILLE < ECCE ILLE, and QUOQU'ET < QUOQUE ET (Nyrop 1914, §280, p. 274).

4. The elided vowel was usually but not always a schwa (e.g. [ə] elided in *la* + feminine noun beginning in a vowel, as in *l'amie*).

5. It is significant that the present conventional spelling shows the loss of schwa from such proclitics. This is an indication both of the very early date of loss and of its regularity. The spelling does not normally show schwa loss in other cases, even when the schwa occurred in the vicinity of a vowel (there are a few exceptions to this rule, e.g. *sûr* < *seur*, *marchand* < *marcheant*).

6. Line references for the *Strasburg Oaths* are quoted according to the text in Bartsch (1958, p. 3).

7. It is possible that retention of the schwa in this example was due, in part at least, to the *H* at the beginning of the proper noun (whether or not the *H* was pronounced). Nyrop does not mention this possibility.

8. The vowels which were usually spelt *ei*, *ai*, and *oi* were diphthongs through part or all of Period 1. The question arises as to whether one is justified in considering schwas which followed these sounds to be postvocalic, or if in fact some were postconsonantal (after a fricativized [j]). While the diphthongs may have ended with the tongue in a high position during part of Period 1, no friction was involved. Thus, all these sounds are considered to have ended with vocalic elements (similar to the off-glides in Modern English [ai], [au], and [ɔi]): this interpretation is made also by other authors. For more details see Pope (§§507, 519, 531, and 1157-8, pp. 191, 194-5, 198-9, 444) and Fouché (1958, pp. 260-1, 270, and 272).

9. It may be noted that the *Poème Moral* is a northern text.

10. A few grammarians of the 16th century (e.g. Sibilet in 1548 and Tabourot in 1587) insisted that word-final schwas after vowels should still have syllabic value, especially at the ends of lines in poetry (for a detailed discussion see Thurot 1881, pp. 167-68). There is no doubt that these claims were entirely artificial, due to the frequent retention of the *-e* in the spelling and the desire to formulate strict rules for versification. The very fact that some grammarians felt it necessary to state that such schwas were pronounced indicates that this was not done particularly often.

11. Meyer-Lübke (1913, §142, pp. 115-6) states that loss of schwa before another vowel occurred first in cases where both vowels were unstressed (e.g. *réuser*). However, this idea is not expressed by other scholars.

12. Pulgram (1970, p. 25) defines *nexus* as "a series of lexemes... joined in such a way that the entire series behaves phonologically (segmentally and suprasegmentally) like a word". (A "lexeme" for Pulgram is a unit similar to that normally referred to as a word - it is not a single morpheme.) The essential difference between nexus and cursus, according to Pulgram, is that the former does not involve pauses, while a cursus is a stretch of speech bounded by pauses. For more details on the concept of nexus, see Pulgram (1970, pp. 25-8).

13. A possible reason for the generalization of the schwa-containing *ferai* is the analogical influence of other forms of the verb *faire*, especially *ferons* and *ferez* (future tense, first and second persons plural). No such analogy was possible in the case of *vrai/verai*.

14. Future and conditional forms provided a favourable morphological environment for schwa loss between consonants, a feature which is reflected in modern French by the fact that most such schwas are lost even in schwa-retaining dialects like those of southern France (compare Rochet, to appear). See also section 4.6.1 on schwa loss after two consonants in modern French.

15. The fact that all the examples of schwa loss between identical consonants during Period 1 involve [rər] is significant in view of the chronology of geminate reduction in Old French. According to Pope (1966, §366, p. 147), all the geminate consonants of French except [rr] had been reduced by 1100: [rr] remained longer. Wolff (1958, pp. 88-106), in a detailed analysis of Old French [r] and [rr], states that

it is impossible to precisely date the reduction of [rr] (p.101). She says, however, that this likely occurred "in the Old French period" (p. 102) -,that is, by 1300. In any case it is clear that [rr] persisted into the period when loss of schwa in [rər] had begun. Perhaps the existence of the etymological [rr] favoured the loss of schwa between two [r] over loss between other identical consonants. It may also be noted that many of the reductions cited occurred in future forms, and were undoubtedly favoured on this ground.

16. The phonetic value of the vowel in such words at the time of the earliest French texts is uncertain. It may have been schwa, or it may have been an [o] or [u]-vowel as suggested by the spelling *lo* (also *jo* for *je*). In any case, it was very weakly stressed, corresponds to modern schwa, and underwent loss along with vowels which definitely were [ə]. See Pope (1966, §§831, 834, and 837, pp. 321-3).

17. The vowel of the plural article *les* is also difficult to define for Old French. It was probably schwa until about the 16th century, when it was gradually strengthened to [e] or [ɛ] (see Thurot 1881, pp. 211-4).

18. The modern form *aux* began to occur later in Period 1; this was by analogy from the singular *au* (Nyrop 1924, §500, pp. 372-3; Pope 1966, §843, p. 325).

19. Beginning in the 13th century, *eu* was gradually replaced by *ou*; the latter was itself replaced by *au* about 1500. Modern usage is thus *jeter au feu*, etc. (Nyrop 1924, §502, pp. 373-4).

20. An alternate simplification of *enls* was to *ens*. There are examples of this in *St. Bernard* (from Metz, Lorraine - about 1200), but it was quite rare. The more usual result, *es*, became archaic in the 17th century: it was replaced by *aux* or *dans le* (Nyrop 1924, §502, pp. 373-5) except in such fixed expressions as *Licence ès Lettres*, *Bachelier ès Lettres*, etc. where it survives today.

21. Nyrop (1924, §502 bis, p. 375) notes a modern analog of these processes in popular and informal standard [syl] for *sur le* (represented in argotic literature as *su'l'*).

22. Line reference from Bartsch (1958, p. 6).

23. For a general discussion of grammatically conditioned sound change, and many examples, see Anttila (1972, §§4.22-4.26). See also Rochet (1974).

24. Schane's views on the development of schwa loss are discussed further in section 5.4.2 below.

25. Most schwas in early Old French represented those unstressed vowels which survived the wholesale syncopes and apocopes of the Gallo-Roman period. Syncope affected the antepenultimate syllable of paroxytones (e.g. BONITÁTE > *bontáte*) and the penultimate syllable of proparoxytones (VÍRIDE > *vírde*): for the details see Klausenburger (1970, pp. 44-5). Gallo-Roman apocope resulted in the effacement of all word-final vowels except [a] and those vowels retained to support consonants; for example MŪRI > *mur* (Klausenburger 1970, pp. 49-50;

Pope 1966, §256, p. 113; and section 1.2.2 above). Retained final vowels were weakened to schwa and persisted through part or all of Period 1.

It is generally supposed that these widespread losses of unstressed vowels in Gallo-Roman were largely due to the strong expiratory stress which began to develop in the Late Latin spoken in Gaul (Pope 1966, §223, pp. 102-3; Klausenburger 1970, p. 9). The strong stress persisted into the Old French period; hence it is natural to suppose that it continued to affect unstressed vowels (schwas). This is the force behind the postulated "pressure toward the loss of unstressed vowels" during Period 1.

26. The division [O-O] was impossible because there were no word or syllable-final obstruents (all had been lost in early Old French - see section 1.4.2.2); while [-OO] was impossible because no words, with the exception of a few learned forms in [#sO], began with two obstruents in Period 1 French (see section 1.4.2.2).

27. The following types of consonant groups were produced by word-medial schwa loss: [OL], [OG], [LO], [LG], and [LL].

Chapter 3

Loss of Schwa in Period 2 (1500 - 1800)

3.1 - Introduction -

3.1.1 - The data -

Whereas the information on schwa loss during Period 1 is all indirect, soon after the beginning of Period 2 grammarians and orthoepists began to discuss the French language, and from that time on schwa has received a prominent place in their work. ,Two types of direct data appear: more-or-less general comments to the effect that schwa should or should not be pronounced in a given position; and lists of examples of specific words or phrases which show lost or retained schwa. Indirect information in the form of spellings, syllable counts, and rhymes continues to be available, but its value diminishes rapidly in Period 2 as spelling and poetic conventions become more standardized. However, such data remain very useful through the 16th century.

Direct grammarian evidence is more difficult to analyze than simple indirect data because of the greater amount of editing and distortion that occurs in the former type: the aim of most of the early orthoepists (and indeed of many of their 19th and 20th century successors) was to standardize and fix the language in what they considered to be "the best" or "a pure" form. Their statements thus do not necessarily reflect what people actually said but rather what the orthoepists thought they should say. In this light, a remark of

the type "X is said" is automatically suspect. If, on the other hand, an author writes "It is better to say Y than X", it is a reasonable assumption that X is in common use and in fact is probably the more frequent and natural pronunciation (otherwise there would be no need to criticize it). Many such statements concerning schwa occur, and they provide a valuable body of information.

The second type of direct data (lists of examples of schwa loss or retention) is limited in scope. There are no textual sources which permit the counting of the relative numbers of schwas lost and retained by a given speaker in a given type of speech. It is thus difficult to trace the development of schwa loss through Period 2: this difficulty is much less acute for Period 3 precisely because a number of such texts are available. Some information on the situation in Period 2 is obtainable, however, by comparing the number of attestations of loss in different positions in a given time span (for example 1500-1549), and by comparing the number of examples of loss in a given position during different periods of time. Such data, together with the many general statements available, permit a rather detailed picture to be put together, at least for some positions. Of course the results of such a procedure are neither as precise nor as sure as those obtained in the next chapter for the period after 1800.

The study of direct data made here would not have been possible without the invaluable compilation of the orthoepists' material on schwa made by Thurot (1881, pp. 143-214). In some cases the data were

used directly from Thurot; in others the original works were consulted, using the references given in Thurot. A complete list of the works used in this chapter is given in Part 2 of the bibliography. For biographical remarks on the orthoepists, along with a discussion of the general reliability of each, see Thurot (1881, pp. xxii-lxxxvii).

The most important orthoepist for the study of schwa is Nathanael Duez, a German who produced a text on French grammar and pronunciation for the use of Germans. This went through multiple (at least eight) editions between 1639 and 1669 or later. In a remarkable series of lists designed to help his fellow citizens handle the silent spelled letters of French, Duez has provided over 600 examples of un-pronounced *e* in context, most of which correspond to a previously pronounced schwa. These are accompanied by comments on particularly difficult or vacillating points, and a phonetic transcription using Gothic characters. Duez is much less prescriptive than most of his colleagues, despite the fact that he was writing for non-francophones. In general his testimony agrees closely with others'; this fact, as well as the high degree of internal consistency within Duez' evidence itself, indicates that he was an extraordinarily accurate and unbiased observer. In the position-by-position discussions below, the data from Duez are usually discussed separately from the other available information.

The indirect evidence from spellings and syllable counts is interpreted as it was for Period 1: an example lacking an *e*, where

that *e* represents an etymological schwa, is considered to be evidence that schwa loss was possible in the word concerned in the oral language. The presence of an etymological *e* in a spelled form, by contrast, does not necessarily reflect a pronounced schwa, since the standardized spelling which developed during the 17th century often preserved *e* in places where no schwa appeared in the contemporary spoken language.

The three major sources of indirect examples are as follows: Brunot's examples of *e* loss in literary works of the early 16th century (Brunot 1922, pp. 247-8), Marty-Laveaux' discussion of the language of the poets of the Pleiade (Marty-Laveaux 1866, pp. 465-70), and Rosset's examples of *e* retention and loss from some Ile-de-France patois texts of 1649-50 (Rosset 1911, pp. 127-8). Direct and indirect examples are combined to provide the figures reported in this chapter.

A further source of information on schwa during Period 2 is found in modern discussions of the problem (e.g. in Thurot 1881, and Rosset 1904 and 1911). These are mentioned where relevant, but since none are based on a full study of the situation, they are incomplete and sometimes misleading.

3.1.2 - The question of style -

The style of language represented by the Period 2 data on schwa is in most cases much the same as that described for Period 1 (educated speech free from widespread artificial rules).[1] The efforts of the orthoepists to "improve" French did not have very much effect at first: it was only in the later 18th and 19th centuries that the

educated language began to show consistent adherence to grammarian and Academy-approved rules, including some concerning schwa. The results of these influences will be discussed in detail in Chapter 4.

For the moment, it is sufficient to emphasize in general terms the great importance of the grammarians on the development of schwa loss in Standard French. Dauzat (1950, p. 91) writes that "...en conservant cet *e* dans l'orthographe, en le faisant apprendre à chaque nouvelle génération par l'épellation et la lecture, ils [les grammairiens] l'ont maintenu dans la conscience linguistique". Hence, in present-day French, any schwa may be pronounced if needed or desired for emphasis or other stylistic effect. Rosset (1904, pp. 445-6) goes even farther. He feels that the natural evolution of schwa in the 16th and 17th centuries was toward complete elimination of the sound, except when accented or where needed as a support vowel (in which case it would have been uniformly strengthened to [e]). He continues: "...les grammairiens ont fixé d'une façon qu'ils ont cru définitive un moment dans cette évolution, alors qu'elle n'était que commencée, et ils ont ainsi établi pour longtemps une prononciation compliquée qui ne devait être que temporaire". This analysis may be somewhat exaggerated, but in any case the basic influence of the grammarians is clear enough.

In present-day French, stylistic factors are very important in determining whether a given schwa will or will not be pronounced in a given case, and some comments by contemporary grammarians show that this was true during Period 2 also: although schwa was commonly not

pronounced in many environments by about the middle of the 17th century (see the following sections), it could be pronounced in formal styles or for special effect. Thurot (1881, pp. 172-3) has collected the relevant remarks:

1. Dumas (1733) states that word-final schwas in words like *anée, aisée* are pronounced in singing and in formal discourse ("le discours soutenu"); such schwas were of course lost in normal speech long before the 18th century.

2. Harduin (1757) writes: "Le plus communement, et surtout dans la conversation familiere, l'*e* feminin [schwa] se prononce si foiblement, qu'il est presque muet...".

3. Boulliette (1760) considers word-final schwa after a vowel to be entirely silent, except at the end of a line of poetry, where it is pronounced or sung "assez désagréablement, *eu*".

4. De Wailly (1763) states that word-final schwa before a word beginning with a consonant should be more strongly pronounced in poetry than in prose. He refers to the hemistiche *une nouvelle grace*, which should in poetry have the schwas pronounced except in *grace* (thus yielding six syllables). In prose, by contrast, the pronunciation is *une nouvelle grace* with only four syllables.

While the information on stylistic variation given by these remarks is much less complete than that available for Period 3, it is clear that style was important also in Period 2. The more formal or poetic the discourse, the more likely a given schwa was to be retained.

3.2 - Schwa in word-medial syllable, between consonants -

In Period 1, loss occurred in this position when the schwa was in contact with a liquid or a semivowel, but it was not regular. Toward the end of the 15th century, the process of loss accelerated considerably. This development is described below in three subsections, depending on the number of consonants involved and the position of the schwa among them.[2]

3.2.1 - Schwa between single consonants [CəC] -

On loss in [CəC], Fouché (1958, p. 525) writes: "...il semble bien que dès le XVe siècle la syncope se soit intensifiée et que l'[œ] [schwa] ait manifesté une tendance à s'amuir entre deux consonnes dont aucune n'était une liquide". Rosset (1911, p. 140) states that schwa between single consonants had in general become silent well before the 17th century. He notes that some grammarians protested that loss in this position was very bad for the French language, while others accepted it as the "correct" pronunciation. Both opinions confirm the widespread existence of the change. Examples of loss in [CəC]: *batəleur*, *aləbastre*, *galərie*, *purəté*, *bettərave*, *achəter*, *soupəçon*, *ancienneté*.[3]

Several authors state that, during the 16th century, loss was more advanced where the schwa preceded or followed a liquid than where it stood between two obstruents (see, for example, Thurot 1881, p. 143; Gougenheim 1951, p. 19). An analysis of the examples available from Thurot's list and elsewhere (Duez excluded) confirms this hypothesis. Of 73 examples of schwa loss from the 16th century, 64 (or 88%) occur

in [LəL], [Lə0], or [0əL] (that is, where the schwa is in contact with at least one liquid); while the remaining 12% occur in [0ə0].[4] In the first half of the 17th century the figures are 39/48 (81%) when a liquid is involved and 9/48 (19%) in [0ə0]; and from 1650 - 1700 the figures are 49/71 (69%) and 22/71 (31%) respectively.

The situation of schwa loss in [CəC] during the 16th century, then, was essentially a continuation of the pattern found in Period 1, when loss was confined almost entirely to the positions before or after a liquid and before a semivowel. Loss could occur in [0ə0] during the 16th century, but it was not nearly as common as loss around a liquid.[5] This preferential pattern decayed gradually through Period 2 until, by Duez' time (1669), loss was usual irrespective of which consonants surrounded the schwa. Duez (1669, pp. 74-91) shows 56 examples of loss against only 1 example of retention.[6] All classes of consonants (stops, fricatives, nasals, liquids, and semivowels) occur in the first position of the [CC] sequences resulting from loss, and all classes except semivowels occur in the second position. It is certain, then, that loss of schwa from [CəC] was general by the middle of the 17th century.

3.2.2 - Schwa after one consonant, before a cluster [CəCC] -

In the 16th and 17th centuries, loss occurred quite frequently in this position in the phonotactic types [CəOL] and [CəOG] (a total of 37 attestations of loss are available from all sources). Examples: *palefrenier* [l-fr], *jarretiere* [r-tj], *madmoiselle* [d-mw]. While the shortage of examples precludes any study of the development of loss

from these sequences during the early part of Period 2, it is clear that it was usual by the mid-17th century.

The only other type of cluster to occur after schwa within a word was [OG], as in *atelier*. Today, loss is to some extent inhibited before such clusters, apparently because of distributional factors (see section 4.5.5). During Period 2, it seems that loss from [CəLG], especially [OəLj],[7] was much less common than was that from [CəOG] and [CəOL]. Thurot (1881, p. 161) notes that retention was the rule in nouns ending in *elier* (e.g. *chandelier*, *tonnelier*). *Bourrelier* was an exception to this tendency and could show loss: Thurot (1881, p. 162) suggests that this was because [r] instead of an obstruent preceded the schwa, an idea which receives support from the present-day situation (see section 4.5.5). Thurot (1881, p. 162) dismisses the only other two attestations of loss from this position (*bastelier* [batlje] and *chappelier* [šaplje] in Duez 1669) by saying that they "did not prevail". This analysis is undoubtedly accurate as far as it goes, and a more detailed discussion is impossible due to a shortage of data.[8]

3.2.3 - Schwa after a cluster [CCəC] -

Some modern authors state quite bluntly that schwas in word-medial position after two consonants were always kept in Period 2 (cf. Rosset 1904, p. 142; Fouché 1958, p. 525). Others are less categorical, and in fact there are a number of examples which show loss. The great majority (24/29) are of the type [LOəL] (e.g. *fourbérie*, *surpéllis*, *regardéras*); the other 5 examples are of the words *parlérai* and *espérit*. Loss in [CCəC] was thus possible during Period 2, although

apparently only where the consonant following the schwa was a liquid. Even in that case retention must have been quite common, as it is in present-day French.

Part of the reason for the widespread retention of schwa in [CCəC] today is that a prescriptive rule stating that schwa should be retained in this position gradually became accepted during the 18th century.[9] A typical statement of this rule was made by Demandre in 1769: schwa in the middle of a word must be "sounded more" when two consonants precede than when only one precedes (see Thurot 1881, p. 162). Rules of this type are found in many works by modern orthoepists (see section 4.6.1). On the other hand, the natural evolution of schwa loss, which continued even in "good French" despite the rule, apparently involved a widening of the environments for the loss from the [LOL] position to others (detailed evidence for the current situation is given in section 4.6 below).

3.3 - Schwa in word-final position -

3.3.1 - Schwa after a single consonant -

It will be recalled from Chapter 2 that loss of schwa in this position was just beginning in continental French at the end of the 15th century (except where the following word within the same group began with a vowel).[10] According to Rosset (1911, p. 131) and Gougenheim (1951, pp. 20-1), loss in [Cə#] and [Cə##] had become regular by the beginning of the 17th century. Thurot (1881, p. 169) places the date in the mid-17th century, while Fouché (1958, p. 524) places it

around 1700. These variations are in keeping with the gradual nature of the change: it is not possible to date such changes precisely.

Duez' testimony confirms that, in the mid-17th century, loss of schwa was very general in both [Cə##] and [Cə#].[11] In group-final position, he shows 106 cases of loss to only 1 of retention, and loss is shown after all types of consonants. Examples are *hontø*, *servicø*, *fairø*, *hommø*, and *habillø* [abij]. In group-medial position, all 129 examples of [Cə#CV] given by Duez show loss. The regularity of loss here is further indicated by the fact that all classes of consonants except semivowels occur as both the first and second elements of the resulting consonant sequence. Examples: *faitøs pas* [fɛtpa], *honnestø femme* [ɔnɛtfam], *vivønt ces* [vivse], *baisø les* [bɛzle], *quelløs nouvelles* [kɛlnuvɛl], *unø goutte* [yngut]. Furthermore, Duez shows 32 examples of loss in [Cə#CCV], with no retentions. The word-initial clusters represented are of the types [OL] as in *bonnøs graces* [bɔngras], [OG] as in *petitø piece* [pətitpjɛs], and [LG] (a single example - *ditøs luy* [ditlɥi]). It is clear, then, that schwa loss was not inhibited before a word which began with a consonant cluster.

The gradual development of schwa loss in word-final position through the first half of Period 2 is reflected in a number of comments by contemporary grammarians. The following is a representative selection:

1. Tory (1529) writes that the Lorrainois "laissent quasi tousiours a pronuncer le E, quant il est a la fin des dictions". His examples include *herbetø*, *musetø*, *chansonetø*, *compørø*, and *comørø* (see

Thurot 1881, p. 166).

2. Du Gardin (1620) says that word-final schwa is pronounced weakly and softly, with a half sound, "comme si on negligeoit la prononciation entière" (see Thurot 1881, p. 165).

3. Van der Aa (1622) finds that word-final schwa is imperceptible, and advises that it should be treated as if it were not written (see Thurot 1881, p. 168).

4. Duez (1669, p. 74) states that word-final schwa is so short that one doesn't hear it at all.

5. Mourgues (1685) refers to the release of final consonants (see Brunot 1925, p. 191). He says that such consonants cannot remain intact without some sort of "petit *e* final" after them. That this remark refers to the consonant release rather than to any full-fledged schwa is clearly indicated by the fact that Mourgues heard this "petit *e*" in *bal*, *encor*, and *vis* as well as in *balle*, *encore*, and *vice*. The schwa must already have been lost as a vocalic entity to make such a comparison possible.

The above discussion does not take into account the possibility that the development of schwa loss in word-final position after one consonant occurred at different rates after different consonants. In fact, Thurot (1881, pp. 170-1) suggests that loss during the early part of Period 2 was favoured after liquids. An examination of the numbers of attestations of loss after obstruents and after liquids during the 16th and 17th centuries (Duez excluded - see Table 1) does not support this hypothesis. Table 1 shows that there was no significant difference

in the rate of development of loss in these two positions.[12]

It is clear, then, that schwa loss in word-final position after a single consonant developed during Period 2 independently of the consonant which preceded the schwa. Loss was regular by about the middle of the 17th century.

3.3.2 - Schwa after a consonant group -

The Period 2 examples of schwa loss in this position come from the mid-17th century: *votr' ville* [vɔtr#vil], written by Colleter (1665); and 28 examples in Duez.[13] Duez shows loss in the following sub-environments:

(1) In group-final position

(a) [LOə##] - 7 examples, e.g. *Ferme la portə.*

(b) [OLə##] - 8 examples, e.g. *une goutte de vinaigrə.*[14]

Table 1

Attestations of schwa loss during the 16th and 17th Centuries in [Cə#], by 50-year periods (Duez' excluded)

	Time Period				
	1500-1549	1550-1599	1600-1649	1650-1700	Total
Loss after [L]	4	9	11	5	29
Loss after [O]	6	10	11	0	27
Total	10	19	22	5	56

(2) In group-medial position

(a) [LOə#C] - 3 examples, e.g. *Fermé la porte.*

(b) [OLə#C] - 7 examples, e.g. *l'autré jour.*[15]

(c) [LLə#C] - 3 examples, e.g. *parlé-il* [parl#til].

Duez also shows 11 examples of retention of schwa after two consonants. All of these follow [OL]: there are 9 examples in group-final and 2 in group-medial position (the sentence *Nous sommes des pauvres miserables* [##nu#sɔm#de#povrə#mizerablə##] illustrates both types).

Some evidence for the equivalence of loss after one and two consonants by about 1650 is provided by grammarian remarks in which examples showing loss after a cluster are included with others showing loss after a single consonant. The remarks are:

(1) Deimier (1610) states that the end of the words *astrolabe* and *herbe* "ne rend qu'un demy son...et l'oreille en est fort doucement touchée" (Thurot 1881, p. 164).

(2) Chifflet (1659): schwa "se prononce foiblement et obscurement, d'un son imparfait et presque imperceptible. C'est comme le reste d'une consonne qui sonne à la fin d'un mot. Par exemple *animal*: au bout de cette *l*, il y a un petit reste d'*e*, lequel estant un peu mieux exprimé, l'on entend sonner *animale*. Ainsi *marc*, *marque*, *coc*, *coque*" (Thurot 1881, pp. 168-9).[16]

(3) Duez (1669, p. 74) writes that in most non-clitics which end in schwa, the schwa is so short as to be inaudible. This remark appears at the head of a long list of examples of schwa loss in word-final position both after a single consonant and after two consonants,

so it must refer to the latter type as well as the former.

(4) Hindret (1687): "En ces mots, *commode*, *borne*, *agate*, *bride*..., les *e* ne sonnent point dans la prononciation" (Thurot 1881, p. 171).

(5) Harduin (1757): "Le plus communement...l'*e* feminin se prononce si foiblement, qu'il est presque muet, comme à la fin des mots *facile*, *rage*, *livre*, *oncle*" (Thurot 1881, p. 172).

(6) Voltaire (1764): "*Empire*, *couronne*, *diadème*, *épouvantable*, *sensible*; cet *e* muet, qu'on fait sentir sans l'articuler..." (Thurot 1881, p. 173).

Thus, schwa in [CCə#] and [CCə##] was frequently lost by the 17th century: the evidence from Duez' lists and from the statements cited immediately above is clear and consistent on this point.

The pattern of schwa loss in word-final position after the cluster type [OL] was complicated by the fact that the liquid also showed a marked tendency toward loss. Some authors state that the loss of either sound entailed the loss of the other (Rosset 1904, p. 434; also 1911, pp. 137-9; Brunot 1925, p. 190). The several examples quoted above where the schwa is lost but the liquid remains show that, at the very least, this rule was not absolute. In fact, loss of the schwa and loss of the liquid were originally independent processes which happened to be taking place during the same time period, and which therefore became confused.

The most striking evidence for this independence is that the words which ended in [(O)Orə] showed sporadic loss of the [r] as early as the

12th century. Meyer-Lübke (1913, §144, pp. 116-7) states that rhymes between words in *-tre* and others in *-te* were common in Old French and also in the poetry of Charles d'Orléans (1394 - 1465). In addition, many words which ended in *(O)Oe* etymologically show forms in *-(O)Ore*. Foerster (1878, p. 88) gives a long list of examples, among them *tristre*, *rustre*, *chanvre*, *Hollandre*, and *jaspre* (no references are given for these). He does cite the following sources for *maintre* < *mainte*: *Guillaume de Palerme* (12th century), *Ogier le Daneois* (13th century), and *Beauvon de Commarchis* (1335). Meyer-Lübke notes that there is no evidence that an [r] really was added in this position: in his opinion the [r] of etymological [-Or] was "weakly" pronounced, and therefore the forms like *maintre* were spelling hypercorrections.

Loss of the liquid from *-OLe* is attested by grammarians from the 16th century on. Examples (see Thurot 1966, pp. 266-8, 280-3, 285-6): *pulpite* < *pulpitre*, *tempe* < *temple*, *theriaque* < *triacle* (1549); *guimpe* < *guimple* (1572); *demoniaque* < *demoniacle* (1584); *coriande* < *coriandre* (1680); *charte* < *chartre* (1606, 1718). Hypercorrect spellings for words with etymological *-Ce* were also common (e.g. *arbalestre* < *arbaleste* - 1530, *tartre* < *tarte* - 1587). Examples of spellings where the *e* as well as the liquid was lost are also found, but they are not nearly as common. Examples: *quat* (< *quatre*) *gentils homes* (popular song of 1563 - see Brunot 1922, p. 248), *corromp* < *corrompre* (1587, 1620). Rosset (1911, pp. 127-8) found both types of spelling in texts written in 1649 in Ile-de-France patois (e.g. *nout chien* < *noutre*, *un guiebe dans le ventre* < *guieble* = *diable*).

Undoubtedly many of the later spellings in *-Oe* < *-OLe* should not be interpreted as attesting a pronounced schwa, since schwa was frequently lost in word-final position by the mid-17th century. But in 1550, when the loss of the liquid was well established, loss of schwa in word-final position was just beginning. Thus, spellings from that period such as *pulpite* almost certainly represent a pronunciation without the liquid but with schwa. It may be presumed that the loss of schwa in such words proceeded gradually through the 16th and 17th centuries, along with all other word-final schwas. Duez, in his phonetic transcriptions, never shows a pronounced schwa in words like *notre* and *vôtre* except where the liquid is also retained.

Thus, by the mid-17th century, only three of the four theoretically possible pronunciations for words in etymological *-OLe* were still found. These were [OLə] with both liquid and schwa pronounced, [OL] with pronounced liquid but lost schwa,[17] and [O] with both liquid and schwa lost. All three alternates continue to exist today.[18] The tendency toward loss of the liquid, which if unchecked might have resulted in complete loss, came under the criticism of many grammarians, starting at least by the early 17th century (see Thurot 1966, pp. 267, 281-2). This pressure has been largely responsible for the stabilization of the liquid (with or without accompanying schwa) in the most elegant form of current standard French. However, loss of the liquid remains very common in informal speech, even in that of highly educated and cultured speakers who would never allow themselves such a "liberty" in formal discourse. For a complete discussion of the modern situation,

see sections 4.4 and 4.6.5.

The misconception that, in the structure [-OLə], the loss of the schwa entailed the loss of the liquid and vice versa is thus due to (a) the absence of pronunciations in [Oə] after the 17th century, and (b) the modern notion that [OL] clusters are impossible or very difficult to pronounce. In fact, schwa loss developed in this position along with loss in other word-final environments, and was originally completely independent of what happened to the liquid.

3.4 - Schwa in word-initial syllables -

During Period 1, schwa showed sporadic loss in the first syllable of words when preceded by an obstruent and followed by a liquid or semivowel (see section 2.5 above). This earlier situation is reflected in an observation by Brunot (1922, p. 245), who, in a study of the popular songs of the early 16th century, did not find any examples of schwa loss in word-initial syllables between two obstruents, or between a liquid and an obstruent (words like *petite* and *leçon* always retain the initial schwa). As Pope (1966, §247, p. 111) puts it, "...the beginnings of a more widespread reduction is indicated by the shortened forms cited by grammarians of the sixteenth century, e.g. *ch'val*, *d'ssus*, *s'la*, *s'pendant*".

The gradual spread of loss to sequences other than [#OəL] and [#OəG] is reflected by the available Period 2 examples. Of the 14 attestations of loss during the 16th century, there are 9 from the sequence [#OəL] (e.g. *pɛlotte*, *bɛlistre*), and 5 from [#səO] (e.g. *sɛcourgeon*). Loss from [#LəO] (e.g. *lɛçon*, *rɛnommée*), and from [#OəO]

except [#səO] (e.g. *tęnez*, *dęmander*) is attested only from 1633.

Despite this delay in the beginning of loss from [#LəO] and [#0əO], by the mid-17th century it had become possible between any pair of consonants. This is shown by the examples from Oudin (1633), the Ile-de-France patois texts of 1649 (Rosset 1911, pp. 127-8), and Duez (1669). When taken together, these show all types of consonants except semivowels (that is, stops, fricatives, nasals, and liquids) both preceding and following the schwa. Thus, by the mid-17th century, loss in word-initial syllables was comparable to that in the other positions in the word.[19]

3.5 - Schwa in clitics (group-medial position) -

There were three main groups of clitics (words which contained schwa as their only vowel or vowels) in French during Period 2: (1) *te*, *de*, *que*, *ce*, *se*, *je*, *le*, *me*, *ne* (these nine remain with schwa today), (2) *les*, *mes*, *tes*, *ses*, *ces* (frequently with schwa, especially in the 16th century - this was gradually replaced by [e] as in standard French today. See Thurot 1881, pp. 211-4), (3) *cet*, *cette* (usually [sət], [sətə] during Period 2; now usually [sɛt], although many non-standard dialects still use schwa and frequently lose it. *Cette* is discussed in the section on sequences of schwa (section 3.8 below); the behaviour in group-medial position of the remaining clitics is discussed here. Included is a brief discussion of *le* in affirmative imperative constructions.

There appear to be only two attestations of schwa loss among the single-vowel clitics during the entire 16th century (both are from

Saint-Liens 1580): *à cét après-disner*, and *cét homme* (no extended context). It thus appears that loss in clitics was retarded compared to loss in all positions of full words. However, the lack of mention of such loss could be due simply to a lack of interest by the 16th-century grammarians in these "little" words.

Examples of loss are somewhat more frequent during the 17th century, but even then they are rare compared with attestations of loss in full words. Those for which an extended context is given are (Duez' examples excluded):[20]

A. After a word ending in a vowel: *il n'y a qué trois jours* (1633), *en cé point* (1633), *soulzarme* (= *sous les armes*, 1649), *je lui dis qué oui* (1649), *Qu'est-cé qui...* (1649), *Quand est-cé donc* (1649).

B. After a word ending in a consonant: *pour sé contenter* (1633). Loss in this position does not seem to have been very common, nor is it particularly common today.

In addition, the following attestations of loss without extended context are given: *qué* (two examples from 1633), *dé* (1633), *cét* (three examples before a word beginning with a vowel, from 1641, 1680, and 1687).

Duez' testimony leads to considerable clarification of the situation in this position. He gives 103 examples of loss and 0 of retention in the nine clitics of group one (*te*, *de*, etc.). Each clitic shows loss at least twice, and all types of consonants except semivowels are represented as the second member of the resulting sequences (it may be noted that [w] is attested as the second consonant

in an example from 1649 - see above). The generality of schwa loss, by the mid-17th century, in clitics following a word which ends in a vowel is further shown by a remark of Oudin (1633, p. 7) to the effect that a single clitic of the first type standing between full words lost its schwa entirely.

In current standard French, the clitic *le* presents the peculiarity of usually retaining its vowel when it stands after the verb in an affirmative imperative construction, e.g. *Prenez-le*. In the early part of Period 2, the vowel of *le* in this position was regularly lost. According to Rosset (1904, p. 442), examples of retention began to appear about 1600, but until the late 17th century loss continued to occur even in the most elevated styles, including verse plays (cf. the line by Molière: "Mais, mon petit monsieur, prenez l'un peu moins haut" - *Misanthrope*, line 433). E. and J. Bourciez (1967, p. 46) confirm this picture: "...un hémistiche *Prenez l(e) un peu moins haut* n'a été possible que jusqu'à l'époque de Molière". In 1675 Bérain attested a pronunciation with [ø] or [œ]; and in 1687 Hindret warned against pronunciations like *envoyez-lø*. After this period, the only argument among the grammarians was whether the vowel should be pronounced [ø], [æ], or [e] (Rosset 1904, p. 443).[21] For more details on the pronunciation of *le* in post-verbal position, see Thurot (1881, pp. 207-8).

3.6 - Schwa in group-initial position [##CəC(C)] -

All schwas which are known to have been in group-initial syllables are treated in this section. Included are those in the first syllable

of full words and those in clitics. Only single schwas are discussed here; that is, the examination of instances where the second vowel in the group is also a schwa is postponed until the next section.

Almost all the data on schwa loss in [##CəC] during Period 2 come from Duez, who gives 123 examples of loss against only 4 of retention. The two-member clusters which result from loss are shown in Table 2. This shows beyond reasonable doubt that loss could occur between any two single consonants: it is attested between all possible permutations of stops, fricatives, nasals, and liquids except nasal + nasal, nasal + liquid, and liquid + liquid.

Only four group-initial [CC] clusters are attested by other authors. These are [st] in 1614; and [sd], [sl], and [kn] in Ile-de-France patois texts from 1649, analyzed by Rosset (1911, p. 128). Despite their small number, these examples help to confirm the validity of Duez' testimony.

Duez also attests loss from [##CəCC] in 15 examples (e.g. *Jé suis las* [žsɥila], *Né suis-je pas...* [nsɥižəpa]), and shows 4 examples of retention in this position (e.g. *Ne prie-je pas bien*). Loss is shown only when the third consonant is a semivowel ([ɥ] or [w]).

The Period 2 examples of loss in group-initial position, then, show that this was common between single consonants by the mid-17th century, and occurred also in some cases where 3-consonant clusters resulted. The extreme shortage of examples from authors other than Duez precludes any attempt to trace the details of the development of loss in this position.

Table 2

Consonant clusters which result from schwa loss in group-initial position, as attested by Duez

1st Cons. \ 2nd consonant	p	b	t	d	k	g	f	v	s	z	š	ž	m	n	l	r
p																
b																
t														X		
d		X			X			X	X				X		X	
k			X	X			X	X					X	X	X	
g																
f														X		X
v														X	X	
s	X		X	X	X	X		X	X						X	X
z																
š								X					X			
ž			X					X	X				X	X	X	
m																
n	X						X		X			X				
l								X	X							
r			X			X								X		
	p	b	t	d	k	g	f	v	s	z	š	ž	m	n	l	r

Fouché (1958, pp. 526-7) is apparently the only modern author to explicitly discuss schwa loss in group-initial position (as distinct from word-initial position in general). Fouché accepts that loss in [##CəC] was regular after any consonant except a stop, but he rejects the regularity of loss after a stop, saying that loss in words like *Tənez...* must have been due to an analogical generalization from group-medial position (*Vous tənez...*). His basis for this claim is that, in current French, loss is common after non-stops but does not occur after stops (e.g. in *peser*, *tenir*, *que dis-tu?*, *te sens-tu bien?*). However, this is incorrect: in present French *all* group-initial schwas between single consonants may be lost, although loss is less common when the first consonant is a stop than when it is a non-stop (see the detailed discussion in section 4.2 below). Thus there is no need to ascribe Period 2 loss in group-initial position after a stop to an analogical change:[22] Duez' testimony in fact shows that ordinary phonetic loss was common after all consonants.

The existence of widespread schwa loss in group-initial position during Period 2 is not generally known to modern students of the history of the French language. Pulgram (1967, p. 1640), for example, claims that it is only in recent years that schwa loss has resulted in significant new consonant cluster production in that position. The fact that such new clusters actually developed during the 16th and 17th centuries undermines some of Pulgram's ideas on the dynamic relationships between modern French prosody and phonotactics (see full discussion in section 5.6 below).

3.7 - Sequences of schwa in group-initial position -

A sequence of schwas is defined here as occurring when two or more successive syllables show a schwa vowel. Sequences may occur in group-initial or group-medial position, and may involve various combinations of words and clitics. The group-initial type is considered in this section. Most such sequences involve clitics, but the last schwa (or schwas) in the series may occur in a full word (e.g. in *Je ne le ferai pas*). The patterns of schwa loss which are observed in this position do not depend on whether a given schwa falls in a clitic or a full word.

Examples of schwa loss during Period 2 in group-initial sequences are rare. Nonetheless, Duez' attestations lead to a fairly clear picture of the most important patterns. The following kinds of two-schwa sequences occur, arranged by consonant type:

(1) stop + stop - *que de* + consonant - always [kədø], e.g. *Que dø mouches*; except one example with both schwas lost (*Quø dømandent-ils*).

(2) fricative + nasal - *je me* + consonant - always [žəmø]; *je ne* + consonant - always [žənø]; e.g. *Je nø l'entends pas.*

(3) fricative + liquid - *je le* + consonant - always [žəlø]; *je re* + consonant - always [žərø]; e.g. *Je lø croy bien.*

(4) fricative + fricative - *je se* + consonant - either [žəsø] or [žøsə], e.g. *Je sørai toujours vostre redevable* or *Jø serai...* .

(5) fricative + stop - *je te* + consonant - always [žøtə]; *cette* + consonant - always [søtə]; e.g. *Jø te prie.* Also, *cette* + vowel - [søtø] in *cøttø espée cy.*

(6) liquid + fricative - *recev(w)* + vowel - [røsøv(w)] in *røcøvoir*, *røcøveur*; *reven* + vowel - [røvøn] in *røvønir*.

These examples indicate the existence of a hierarchy of schwa loss based on the first consonant. When this is a stop, the first schwa is retained and the second lost,[23] hence no group-initial cluster is formed (type 1). When the first consonant is a fricative, the first schwa is retained before a nasal or liquid (types 2 and 3), lost optionally before another fricative (type 4), and always lost before a stop (type 5). When the first schwa is lost in types 4 and 5, the second is retained except where followed by another vowel. Finally, when the first consonant is a liquid (and the second a fricative), both schwas are lost (type 6).

Where three or more schwas form an initial sequence, the first two behave much as they would in a two-member sequence. Duez attests three different three-schwa sequences beginning in a fricative + stop: *je te le* gives [šøtəlø], *cette se...* is pronounced [søtəsø], and *cette fe...* gives [søtəfø]; e.g. *Jø te lø dirai*. These behave, then, exactly like their two-schwa counterparts. The other type of multiple-schwa sequence attested by Duez begins with fricative + nasal. Here Duez shows two loss patterns - the first schwa may either be retained (as occurs in all the two-schwa sequences of this type), or lost: *je ne le* is pronounced [žənølə] or [žønəlø]; *je ne le fe...* gives [žənøləfø] or [žønəløfø], e.g. *Je nø le føray pas* or *Jø ne lø føray pas*.[24] It appears from these examples that sequences beginning with fricative + nasal occupy a position intermediate between the type

fricative + liquid (where the first schwa is always retained), and the type fricative + stop where the first schwa is always lost.

The only other example of schwa loss in an initial sequence during Period 2 is given by Fauleau in 1781 (see Thurot 1881, p. 149): *J'te r'demanderai* [ʒətərədə]. This sequence helps to confirm that a sequence beginning with a fricative + a stop normally showed loss of the first schwa and retention of the second.

3.8 - Sequences of schwa in group-medial position -

There are two classes of potential conditioning factors to be investigated for this position: the types of words in which the schwas appear, and the sequences of consonants involved. For the moment, only two-schwa sequences where the first schwa follows a single consonant will be discussed. Multi-schwa sequences and sequences of two schwas where the first follows a consonant cluster will be mentioned later. Most of the data on group-medial sequences come from Duez (1669) and the Ile-de-France patois texts (1649-51) analyzed in Rosset (1911, pp. 127-8). The picture presented below is thus a static description of schwa loss in group-medial sequences in the mid-17th century.

The sequence type [CəCə#V] shows consistent loss of both schwas. This is natural from a phonotactic point of view, since only a two-member intervocalic consonant sequence is produced. The attested examples are: *a cette heure* (shown by six authors between 1530 and 1649), and *Que ferons-nous cette apres-disnée* (1641).

Sequences where the second schwa is followed by a consonant show

much more complex behaviour. The occurring loss patterns are analyzed by word types in Table 3. The three patterns are shown as column headings: loss of both schwas (represented [CøCøC]), loss of the first with retention of the second ([CøCəC]), and retention of the first with loss of the second ([CəCøC]). The four attested word-types are shown as row headings. Occurrent combinations of loss pattern and word-type are designated by an "X". The following list provides one example for each combination:

(1) word-final + clitic - *Ellø sø rendra bien* [CøCøC], *une pieceø de dentelles* [CøCəC].

(2) word-final + word-initial - *uneø pøtite piece* [CøCøC], *Elløø demande trop* [CøCəC].

Table 3

Patterns of loss in group-medial two-schwa sequences, arranged by word-type

Word-type	[CøCøC]	[CøCəC]	[CəCøC]
Word-final + clitic	X	X	
Word-final + word-initial	X	X	
Clitic + word-initial	X	X	X
Clitic + clitic	X	X	X

"X" indicates that a given loss pattern is attested for a given word-type combination.

(3) clitic + word-initial - *Vous nø førez rien* [CøCøC], *Il n'est pas dø besoin* [CøCəC], *Tu me føras bigoté* [CəCøC].

(4) clitic + clitic - *Il nø sø faut pas trop haster* [CøCøC], *vous nø le varié pas* [CøCəC], *Cé badaux disan que sø nest qu'un vilage* [CəCøC].

The four word-types are divisible into two groups based on the word position of the first schwa: where this is in a clitic (types 3/4) all three loss patterns are possible, but where it is the final sound of a full word, the [CəCøC] pattern is not observed. That is, a word-final schwa is *always* lost when a consonant precedes and a sequence consonant + schwa follows, while the schwa of a clitic may remain under similar conditions. In both cases the behaviour of the second schwa is flexible if the first is lost. However, where the first schwa (in a clitic) is retained, the second schwa of the sequence is always lost (the retention of two successive schwas which are separated by a single consonant does not appear to be common). The difference in behaviour between schwas in clitics and those in word-final position is also found during Period 3 (see section 4.7.1 below), and is of theoretical importance to the status of the word in French syntagmatic phonology (see section 3.11.2.3).

The second possible conditioning factor concerns the types of consonants which surround the schwa. It is easy to show, using paired structures from attested examples, that no factors of this type can account for the pattern [CəCøC] as opposed to the other two: (1) [nøfør] ~ [nəfør] (*Vous nø førez rien*, *Tu ne føras que...*),

(2) [sǿkǿs] ~ [səkǿs] (*Voila cǿ quǿ c'est, Je scay bien ce quǿ c'est*), (3) [dǿsǿl] ~ [dəsǿl] (*Tu manges trop dǿ cǿla, Vous plait-il de cǿla*), (4) [məlǿv] ~ [mǿləv] (*Vous me lǿ voulez..., Vous mǿ le voulez...*). Thus, where the pattern [CəCǿC] occurs (when the first schwa is in a clitic) it alternates freely with both [CǿCǿC] and [CǿCəC]. By contrast, there are no examples in which a given [CǿCǿC] and [CǿCəC] alternate, but there are some cases where these two patterns show similar consonant sequences: (1) [nǿdǿm] ~ [lǿdəm] (*unǿ dǿmie aune, Ellǿ demande trop*), (2) [nǿsǿf] ~ [nǿsəp] (*Il nǿ sǿ faut pas..., Il nǿ se peut faire*), (3) [nǿpǿt] ~ [nǿpət] (*unǿ pǿtite piece, gaignǿpetit*), (4) [sǿkǿs] ~ [sǿdəfr] (*Voila cǿ quǿ c'est, une oncǿ de fromage*). These pairs indicate that no completely regular conditioning factor exists. However, there is a very strong tendency toward loss of the second schwa where this is preceded by a fricative (e.g. in *Tu manges trop dǿ cǿla*): there are 13 examples of loss against only 1 of retention. Conversely, the second schwa is usually retained when preceded by a non-fricative (as in *une demie aunǿ de sarge*): 22 instances of retention and 4 of loss are attested.

Seven multi-schwa sequences have been noted from Period 2. Of these, five show loss of the first and third schwas, and retention of the second: [sǿkəsǿl], [nǿdəzǿn], [nǿdəsǿm], [nǿməlǿd], [lǿnəlǿv] (example: *Il nǿ me lǿ dira pas*). Each of these examples follows the tendencies discussed above for two-schwa sequences: the first schwa is lost, the second is retained (the consonant which precedes it is not a fricative); and the third, which is preceded by only one consonant,

is lost. The other two multi-schwa sequences do not show strictly alternate schwa loss. In [rədərəsəvw] (*J'esperé de recevoir*), the first three schwas behave the same way as those in the five cases above. But here the fourth is also lost, which may be considered regular because the consonant which precedes it is a fricative. In [trərədəv] (*voétré redevable*), the most important feature is the concomitant loss of the first schwa and one of the [r]-sounds. The second schwa is also lost although the preceding consonant is not a fricative (cf. the four "exceptional" cases among the two-schwa sequences), and the third is retained (it is preceded by three consonants). There are thus no phonotactic patterns among the multi-schwa sequences which are not also found among those consisting of two schwas.

Where the first schwa of a sequence is preceded by two consonants, it is always retained. Four such examples are attested: *Apporte cela* [rtəsəl], ...*encor de cela* [rdəsəl], *entretenir* [trətən] and *une livre de beurre* [vrədəb]. This last form is the only one in which successive schwas are retained in group-medial position, and thus is definitely exceptional.

3.9 - Schwa between identical consonants -

It was shown in section 2.6 that schwa was frequently lost between two word-medial [r]-sounds during Period 1. Loss in [rər] is attested also by a number of 16th and 17th century orthoepists (see Thurot 1881, pp. 151-5). A total of 11 instances of schwa loss from [VrərV] are

shown for this period, 6 in the 16th century and 5 in the 17th (e.g. *adorɇrai*, *mairie* < *mairerie*). In addition, 10 attestations of loss from [VOrərV] occur, 6 in the 16th and 4 in the 17th century (e.g. *entra* < *entrera*, *controlle* < *contrerolle*). The fact that over half of these attestations fall in the 16th century shows clearly that loss of schwa from [rər] developed along with that in other word-medial contexts (see section 3.2 above).

Duez shows loss of schwa between the following sets of group-medial identical consonants: [t] - 5 forms, e.g. *Vous vous faitɇs tort...*; [v] - 1 form, *sauvɇ vostre grace*; [s] - 2 forms, e.g. *Vous plait-il de cɇcy*; [m] - 1 form, *extremɇment*; [n] - 1 form, *quelles bonnɇs nouvelles*; [l] - 2 forms, e.g. *cellɇ-la*. These examples show loss of schwa between identical consonants for all phonetic types except semivowels, and indicate that such loss was quite common by the mid-17th century. The only example of schwa loss between identical consonants attested by an author other than Duez (aside from the examples of [rɇr]) is *unɇ nouvelle grâce* (De Wailly 1763; see Thurot 1881, p. 173).

Despite this rather massive evidence that schwa standing between identical consonants could be freely lost in Period 2, the modern authors who comment on the situation generally claim that retention was the rule. Thurot (1881, p. 162) remarks that schwa loss was "resisted" in this position. Brunot (1925, p. 193) agrees with this, but then adds that it is possible that the *e* in a word like *chasteté* was not really pronounced - it may have served only to indicate that

the consonant resulting from schwa loss was pronounced as a geminate rather than a simple sound. Rosset (1911, p. 141) again echoes the prevailing view, but like Brunot appears dissatisfied with it: he notes "une véritable tendance populaire à réduire la syllabe *rer* à la consonne simple, *r*". The evidence discussed above makes it possible to set these hesitations aside and state that, during Period 2, schwa loss was not impeded between identical consonants. See section 4.8 for a discussion of the situation during Period 3.

3.10 - The evolution of [OLG] sequences in non-standard dialects -

As was mentioned in section 3.2.2, word-medial [OLj] sequences were eliminated from standard French during Period 2. In certain non-standard dialects, the avoidance of [OLG] clusters was much more general, affecting the types [OLɥ] and [OLw] along with [OLj], in word-initial as well as word-medial position.

Detailed evidence on the elimination of [OLG] sequences from Canadian French during Period 2 has been collected by Juneau (1972, pp. 212-5). He analyzes a large number of letters and other documents written in Quebec during the 17th, 18th, and 19th centuries, and deduces a great deal about Canadian French pronunciation practises from non-standard spellings and other textual features. The data which are relevant to the problem of vowel epenthesis in [OLG] sequences show a non-etymological *e* in various words containing sequences of this type (e.g. *sucerier* for standard *sucrier*).

Juneau gives examples of vowel addition[25] in the following sequences:

1. In word-medial position: [krj], [vrj], [blj], [klw], and [blw]; e.g. *poiverière*, *jabeloire*.

2. In word-initial position: [klw], [blw], [trɥ]; e.g. *quelouer* (for *clouer*), *teruelle*. Also of interest is the hypercorrect spelling *croüest* for *courroie* (sequence [krw]).

All but one of the words given by Juneau were attested during the 18th century. One occurred in the late 17th, and three persisted into the 19th. Spellings with an inserted vowel were thus largely an 18th-century phenomenon. During the 19th century the spelling gradually became standardized, but pronunciations with the inserted vowel remained very common (see section 4.10). Juneau discusses the possibility that the spellings might have been purely orthographical hypercorrections (based on schwa loss in words like *pelote*, *épeler*, and *éperon*), but dismisses it for several sound reasons (see pp. 214-5).[26]

It appears, then, that no [OLG] sequences were very well integrated in 18th century Canadian French, and that they were often eliminated by the insertion of a vowel after the obstruent. It is very probable that such insertions were found also in many areas of northern France, since most of this region shares modern tendencies in this regard with Canadian French. For a complete discussion of the current situation, see section 4.10 below. The theoretical importance of these patterns is discussed in section 4.11.2.3.

3.11 - Conclusion -

3.11.1 - Summary of schwa loss from 1500 - 1800 -

During Period 1, loss of schwa in consonantal environments (between consonants in word-initial and medial positions, and after one or more consonants in word-final position) was sporadic. But by the mid-17th century, loss had become common in most consonantal environments: [CəC(C)] (except [CəLG]), [(C)Cə#], [(C)Cə##], [#Cə#], [#CəC], and [##CəC].

A number of details in the loss patterns of Period 2 are of interest:

(1) Loss was general in word-medial position between single consonants but not in [CəCC] and [CCəC]. In [CəCC] it occurred freely before [OL] and [OG] but not before [LG], while in [CCəC] it is well attested only in the sequence type [COəL] (section 3.2).

(2) Loss in [#CəC] during the 16th century was limited to the phonotactic types [#OəL], [#OəG], and [#səO]. Loss from the types [#LəO] and [#OəO] (except [#ʃəO]) is attested only from 1633 (section 3.4).

(3) The first schwa in a [VCəCəCV] sequence could be retained when it fell in a clitic but not when it fell at the end of a full word (section 3.8).

The theoretical importance of these points is discussed immediately below.

3.11.2 - The phonotactic relevance of schwa loss during Period 2 -

3.11.2.1 - The influence of the number of consonants around the schwa -

In word-medial position, loss was general between single consonants but was restricted where a [CCC] sequence would have resulted (item 1 in the previous section). This pattern is understandable in terms of a broad interpretation of the theory of the ideal syntagm: three-member consonant sequences break up a [CVCV...] arrangement more drastically than do two-member sequences. A somewhat similar pattern is found today - see section 4.11.2.1.

3.11.2.2 - The influence of the precise consonants surrounding the schwa -

The phonetic classes of consonants which surround a schwa had a clearly marked influence on Period 2 loss in word-medial [CəCC] and [CCəC] sequences (section 3.11.1, item 1). In [CəCC], loss was general before [OL] and [OG] (e.g. in *harefleur*, *jarretière*) but was restricted before [LG] (e.g. in *chandelier*). That is, loss occurred freely where the consonant group following the lost schwa could form a syllabic onset which conformed exactly to the sonority and aperture criteria of syllable structure (section 1.3.3.2). This was not true of [LG], since liquids and semivowels are of similar sonority and aperture (section 1.3.2.1).[27] In [CCəC], 28 of the 29 examples of loss show the same type of pattern: they have [O] immediately before the schwa and [L] after (e.g. *apporté-rai*, *surpéllis*, *espérit*). The only attested exception to this tendency is in *parlérai*, where loss resulted in a [LLL] sequence.[28] In other

types of [CCəC], where the second and third consonants would not have formed a syllabic onset of the "ideal" type, no loss is found: examples are [LOəO] as in *fortement*, [OOəO] as in *strictement*, and [OLəO] as in *âprement*.[29]

The lack of loss from the types [OOəO] and [OLəO] may be considered to reflect the influence of sonority and aperture alone, since [OOO] (from *strictement*) and [OLO] (from *âprement*) could not be divided syllabically to produce a two-consonant coda of the ideal type. But [LOO] can be so divided (as in *fortement* [fɔrt-mã]): a syllable ending in [LO] conforms perfectly to the sonority and aperture criteria. Retention in [LOəO] as opposed to loss in [CəOL], [CəOG], and [COəL] therefore suggests that syllable-initial clusters were more acceptable in the French of Period 2 than were syllable-final clusters.[30] This in turn fits with the fact that Modern French is a language in which syllables are phonetically open where possible, and where a closed syllable is necessary for distributional reasons, the minimum number of consonants closes the syllable while the maximum possible number forms the onset of the next syllable.[31] It is clear that a [C-CC] sequence is better integrated in such a language than is a [CC-C] sequence, since a single syllable-final consonant results in a less atypical syllable structure than does a syllable-final cluster. For an example of the influence of open syllabicity on consonant clusters in the French of Period 3, see section 4.11.3.

3.11.2.3 - The influence of word boundaries -

The 16th century limitation of loss in word-initial [#CəC] to the

sequences [#OəL] and [#səO] (section 3.11.1, point 2) is significant because [#OL] and [#sO] occurred etymologically in the standard French of that era (e.g. in *bleu*, *froid*, *statue*).[32] By contrast, no [#LO] groups, or [#OO] groups other than [#sO], occurred. Thus, the development of schwa loss from [#CəC] during the early part of Period 2 was channelled by the presence and absence of etymological groups *in the same position in the word*. This channelling occurred despite the fact that a word beginning in [#CC] could show a syllable division after the first [C], when it occurred in group-medial position after a word ending in a vowel (the commonest environment in running speech). Thus, if the schwa had been lost in phrases such as *sa revue* [sarəvy] or *ma petite* [mapətit], the result would have been group-medial [CC] sequences, which were becoming frequent in 16th-century French.[33] The fact that such losses did not occur shows that the influence of the word as a syntagmatic unit was strong enough to override, in this case, the influence of the group.[34]

Word boundaries are of central importance to the behaviour of group-medial sequences of schwa where the first follows a single consonant (point 3 in section 3.11.1). The fact that the first schwa was universally lost when it fell in word-final position (e.g. in *une piecə de dentelles* [yn#pjɛs#də#dɑ̃tɛl]), but not when it occurred in a clitic (e.g. in *Tu me fəras bigoté* [ty#mə#fra#bigote]), means that the clitic retained its identity in the syntagm. To put it another way, the speakers must have been aware that a word boundary preceded the consonant before the first schwa of the sequence in the one case but not in

the other.

Word boundaries remain a vital influence on schwa behaviour in many positions of present-day French (see section 4.11.1 below). Further theoretical discussion on this matter is found in section 5.5.

3.11.2.4 - The relationship between group-initial and group-medial syllable-initial positions -

Some of the most significant developments in schwa loss during Period 2 took place in group-initial syllables. Prior to Period 2, the only group-initial two-member consonant clusters were of the types [OL] and [OG] (e.g. *traitre*, *diable* pronounced in isolation; and, with loss of schwa, *pǝlote*, *vǝoir*), and [sO] (e.g. *statue*). By Duez' time loss of schwa had resulted in the appearance of the types [OO] (besides [sO]) and [LO] (e.g. *fǝnestre*, *dǝ bon pain*, *Nǝ parle-je pas bien*, *Rǝtournez vous en*), as well as greatly increasing the number of forms with [##sO]. In fact, any combination of two consonants could appear in group-initial position.

The fact that consonant clusters which can occur in group-initial position can generally also occur in group-medial syllable-initial position (section 1.3.1) suggests that schwa loss resulting in the production of group-medial syllabic onsets of the types [OO] or [LO] should have been possible during Period 2. Such loss, although rare, is attested by Duez in such sequences as [nǝdǝm] (*unǝ dǝmie aune*), [kǝžǝsy] (*Dites luy quǝ jǝ suis icy*), and [nǝpǝt] (*unǝ pǝtite piece*). In each of these cases, the only possible syllabification of the resulting consonant sequences is with a single consonant as the coda of

the preceding syllable (since [nd], [kž], and [np] were and are impossible in group-final position). Thus, syllable-initial clusters like [dm], [žsɥ], and [pt] occurred in group-medial as well as group-initial position in Period 2 French.

For further discussion of the relevance to schwa loss of the principle that syllabic onsets tend to occur in both group-initial and group-medial positions, while syllabic codas generally occur both within and at the end of groups, see section 5.4.1.

Notes

1. In addition to this main body of Period 2 data, there exists some information on schwa behaviour in various non-standard dialects. This is discussed in the appropriate sections of the present chapter.

2. The behaviour of schwa between identical consonants is not considered in this section. For a discussion of this environment, see section 3.9 below.

3. It may be noted that the loss of schwa in words like *ancienneté* did not lead to loss of the preceeding nasal consonant (with accompanying nasalization of the vowel before the latter). The situation remains unchanged today: the potential presence of a schwa following the nasal consonant is sufficient to prevent the loss of the latter. Other examples: *promener* [prɔmne], *donnerai* [dɔnre], *canneberge* [kanbɛrž].

4. There are no examples of loss before a semivowel among these data. This is an accident: loss certainly could occur in this position during the early part of Period 2, as it did during Period 1.

5. For a full discussion of the theoretical implications of this schwa loss pattern, see section 5.4.1 below.

6. It should be noted that the generality of schwa loss in any given position cannot be argued solely on the grounds that Duez presents few

or no counterexamples to it. This is because Duez' lists are designed to show *silent* letters, not those which are pronounced. One would therefore not expect to find examples containing pronounced schwas unless non-pronounced ones occur also in the same phrase. Generality of loss is indicated only for those positions in which a sufficient number of examples of schwa loss show sufficient variety of consonants in the neighbourhood of the schwa. This is the case in [CəC].

7. In some non-standard dialects, there was (and still is) a tendency to retain schwa in all [OəLG] sequences, and to eliminate etymological [OLG] by various means. This matter is discussed in sections 3.10 and 4.10 below.

8. Further evidence that [OLj] sequences were disfavoured in the Standard French of the latter part of Period 2 comes from the elimination of etymological sequences of this structure. During the 16th century, such sequences were common (Thurot 1881, p. 492). Lanoue (1596), in his dictionary of rhymes, included most words ending in obstruent + *rier* (e.g. *sucrier*, *baudrier*, *poudrier*, *chevrier*) in a list with words ending in monosyllabic [je]. Additional evidence is available in the poetry of the Pleiade, whose authors always made [OL] + *ier* a single syllable. The following are among the examples cited by Marty-Laveaux (1866, pp. 465-70): *baudrier*, *bouclier*, *encombrier*, *menestrier*, *meurtrier*, *ouvrier*, *peuplier*, and *sanglier*. About 1600, however, words like the above began to be pronounced with an [i]

instead of a [j] after the liquid, hence [bodrie] or [bodrije], [buklie] or [buklije], etc. (Thurot 1881, pp. 492-4). Lanoue (1596) gives evidence of the beginning of this change when he states that the words *encombrier*, *levrier*, *ouvrier*, and *manouvrier* can be pronounced either with monosyllabic or disyllabic endings, "comme on veut" (Thurot 1881, p. 492). Lancelot (1663), Richelet (1671), Ménage (1672), and Mourgues (1697) state clearly that the pronunciation of their time was normally in two syllables (Thurot 1881, pp. 492-4).

Given, then, that [OLj] sequences were eliminated about 1600, it is not surprising that schwa in [OəLj] should have been retained, thereby avoiding the production of new consonant sequences of this type. A more fundamental reason for such retention is given in section 3.11.2.2 below.

9. Another reason is the inherent complexity of some three-member consonant sequences. On this, see the discussion in section 3.11.2 below.

10. This section refers only to loss of schwa at the ends of words in group-final position (abbreviated [Cə##]), and in group-medial position before a word beginning with a consonant or cluster (abbreviated [Cə#]). Loss of schwa where the following word begins with a vowel (elision) was regular from the earliest Old French on (see section 2.2), and is not discussed further in this study.

11. Duez (1669, p. 76) makes a comment in connection with loss in this

position which reveals a great deal about his general attitude to the language he is describing. He refers to the loss of *e* in inverted questions of the form *chante-je* [šãtžə] as being new and vulgar (formerly an [e]-vowel was used in such inversions only: *chanté-je* [šãtežə]). He does not personally approve of the loss of this *e*, but nonetheless he gives a number of examples of it because that is what many people say. Such an attitude speaks well for Duez' general reliability, and sets him above most of his contemporaries as a linguistic observer as opposed to a prescriptive grammarian.

12. This interpretation is obtained with a chi-square contingency test (Keeping 1962, pp. 314-9) using the two rows of Table 1 as rows of the contingency table. The test shows that the probability that there is no difference in the development of loss after obstruents and after liquids is about 15% (χ^2 = 5.39 for 3 degrees of freedom).

13. There are, beginning in 1530, a fairly large number of examples of the orthographic addition of a word-final *e* after a consonant group, and of alternation between *-CC* and *-CCe* forms in words which were borrowed into French during the Renaissance period (e.g. *pacte* < *pact*, and *busc* ~ *busque*). These may reflect uncertainty about whether such words ended in schwa or not, and thus constitute evidence that etymological schwa was being lost at that time. But since there are so few attestations of loss of etymological schwas before Duez' time, this interpretation would be shaky. Even if all the attestations of epenthesis and alternation are interpreted as evidence of loss after

[CC], there is still no doubt that loss here did not develop as fast as loss after [C].

14. There are in addition two examples where both the liquid and schwa are lost in group-final position, e.g. *vostre bien humbl/ø*. On the loss of such liquids, see later in the section.

15. In group-medial position, both liquid and schwa are lost 28 times, e.g. *quatr/ø francs*.

16. Chifflet is referring here to the release of the final consonant: especially in words ending in a voiced consonant, this release often gave (and still gives) the impression of "un petit reste d'*e*".

17. Modern French has no syllabic consonants such as are found for example in English (*bottle* [bɑd|], *sudden* [sʌdn]). Thus, when a group [OL] occurs before a pause through schwa loss, the liquid must be pronounced in the same syllable as the obstruent. For a discussion of the phonetics of such groups, see section 4.6.5 below.

18. The existence of these three alternates is examined from a theoretical point of view in section 4.11.3.

19. This section has examined schwa behaviour in word-initial syllables irrespective of the position of the word in the group. The few examples which show the schwa to be in the first syllable of a group are discussed further in section 3.6 below.

20. Examples dated 1633 are from Oudin; those dated 1649 are from the Ile-de-France patois texts analyzed by Rosset (1911).

21. Some non-standard modern dialects, for example Canadian French, show an [e] vowel in affirmative imperative *le* (compare McArthur 1968, p. 51).

22. Of course, analogies such as those quoted by Fouché might have promoted loss of some group-initial schwas, but they were not *responsible* for loss of schwa after stops.

23. The only exception to this pattern is in *Qué démandent-ils*. A group-initial cluster [kdm] is not otherwise attested, either during Period 2 or Period 3, and thus is at best exceptional. Although it is normally not good practise to seek an excuse for such a form, this one might be considered a misprint, of which there are a large number in Duez' book.

24. Loss of the last two schwas in *Jé ne lé féray pas* conforms to a widespread pattern among sequences of schwa in group-medial position. For discussion, see section 3.8.

25. The vowel added was usually but not always spelled *e* and was generally pronounced [ø] or [œ], at least it is so pronounced today. The main point for the purposes of this study is that a vowel was added: its precise pronunciation is not of great importance.

26. The reasons are as follows: First, all the words cited by Juneau

show a large number of examples of the insertion (other forms show only isolated examples). Second, spellings with inserted letters other than *e* occur (e.g. *tabilier* for *tablier*, *bouroüette* for *brouette*). The sounds represented by such letters were not lost in any words; therefore their appearance in non-etymological positions could not have been due to hypercorrection. And finally, pronunciations with inserted vowels are common in present-day Canadian French.

27. This point, which is applicable also to the general avoidance of [OLG] sequences in non-standard dialects (section 3.10) is discussed further in section 4.11.2.3. The similarity of the situations in Periods 2 and 3 makes it desirable to provide a single unified discussion of their theoretical implications.

28. Loss of schwa in *parlerai* was no doubt facilitated by the fact that it is a future form. On the favouring of schwa loss in futures during Period 1, see section 2.6 above; on a similar phenomenon in present-day French, see section 4.6.1.

29. An exception to this rule was the popular reduction of [Orər] to [Or] (section 3.9). But since only a [CC] sequence resulted, such forms have no bearing on the present discussion.

30. The reasoning is as follows: [C≠OL], [C≠OG], and [CO≠L] could all be divided [C-CC] without producing non-ideal syllables; but in [LO≠O] only the division [LO-O] could have preserved ideal syllable structure.

31. On the fact that French is pronounced with the minimum possible number of consonants in syllable-final position, see Delattre (1965, pp. 36-9; 1966, pp. 12 and 151; and 1951, p. 19). He writes (1951, p. 19) that "la syllabation ouverte est un des caractères dominants du phonétisme français". And again (1966, p. 12): "Toutes les consonnes intervocaliques se rattachent à la voyelle qui les suit.... C'est ce qu'on appelle la 'syllabation ouverte' - les syllabes se terminent sur la voyelle, c'est à dire la bouche ouverte." As an example, he gives the sentence *Elle imite un autre accent* [ɛ-li-mi-tœ̃-no-tra-ksɑ̃]. Elsewhere (see especially Delattre 1966, pp. 150-62) this extreme statement is nuanced, but the general tendency involved is very clear. See also the discussion at the end of section 1.3.2.1 above.

32. On the development of [#sO] clusters in French, see note 35 to Chapter 1 above.

33. Only sequences of the form [rC], and syllable-initial [OL] and [OG] groups, were etymological in group-medial position: as mentioned in section 1.4.2.2, all syllable-final consonants other than [r] were lost during Period 1. But by the 16th century, all consonants were again becoming common in syllable-final position through schwa loss within and at the ends of words.

34. Present-day French schwas in group-medial word-initial syllables

after a single consonant behave differently from other group-medial [CəC] sequences (section 4.5.3 below): the influence of the word remains strong.

Chapter 4

Loss of Schwa in Period 3 (19th - 20th Centuries)

4.1 - Introduction -

4.1.1 - The data -

For most of Period 3, there is an abundance of material on the behaviour of schwa. Since the patterns of loss and retention are of fundamental importance to the phonetics of modern French, it is not surprising that schwa is mentioned in virtually every book on French pronunciation and phonetics. However, it is not particularly easy to use all this information in a description of the patterns of schwa loss and retention. Most writers have at least a partially prescriptive point of view: they are trying to codify the language in a "pure" form, or are aiming their discussion primarily at non-francophone learners of French. In some cases this viewpoint is very strong (for example Malvin-Cazal 1846, Malmberg 1969), and the "description" is then of an idealized "French" which may bear little resemblance to what Frenchmen actually say. Such works have a severely limited value for the preparation of a linguistic description, but they do contain some useful remarks.

A larger group of writers is concerned with "good" French, but its members avoid any strong prescriptive bias. Their writings thus provide descriptions - of varying thoroughness and accuracy - of careful standard French as it is really spoken. Martinon (1913), Grammont (1930), and Delattre (1966) are outstanding members of this

group. In general the patterns of schwa behaviour described in these works are not based on specific linguistic observations, but on the author's extensive personal knowledge of standard French and of the criteria of correctness which are applied by educated Frenchmen to their speech.

The third type of material used in this chapter consists of studies on schwa presented by linguists who have no prescriptive preoccupations. The relative rareness of such works is the major reason why many details of present-day schwa behaviour remain to be elucidated. Most purely descriptive studies are quite recent (e.g. Martinet 1945, Malécot 1955 and 1976, Dauses 1973), but an outstanding 19th century observer was Mende (1880). All of these studies are based on direct observations made by the writer, but the kind of observations varies from brief pilot studies or observations within a more complete phonological analysis (e.g. Malécot 1955, Léon 1966, McArthur 1968) to extensive, carefully planned experiments (e.g. Mende 1880, Dauses 1973). The studies vary also in the type of observations made and in general reliability. The values of the works which pertain to only one or two positions are discussed below in the appropriate sections; those which apply to several different environments are the following:

1. Mende (1880) made personal observations of schwa retention and loss in a large number of plays (both in verse and in prose), in lectures by eleven different professors, in religious services by six different pastors, and in the conversational speech

of "educated men" (all observations were made in Paris). The large amount of data collected in this manner is of great value in confirming the rules on schwa behaviour in careful standard French as presented by the semi-prescriptive writers such as Martinon and Grammont. In general Mende's results agree quite well with these rules, but a number of departures from them reveal that many were tendencies rather than rules: they were obeyed in very careful speech but were sometimes broken in ordinary formal speech even on the stage and in the pulpit. It is impossible to be certain of the accuracy of Mende's observations, but their extraordinary internal consistency is a point in his favour. Also, the simple fact that Mende was interested in carrying out such a complex set of observations at a time when almost all linguistic research was historical suggests that he had unusual observational abilities.

2. Martinet (1945) conducted a classic study in dynamic French phonology. He asked direct questions, via a written questionnaire, of a group of officers in a Prisoner-of-War camp in 1941. The chief deficiency of this approach is that the responses are unverified: spelling, traditional views of correctness, and simple mistakes can considerably skew the results. The absolute figures on schwa loss thus have little value, but the comparative results for related structures are of interest.

3. McArthur (1968) presents a descriptive phonology of a dialect of Canadian French, based on personal observation including the recording of informal conversations without the knowledge of the

speakers. The basis for the study is thus very sound, and while McArthur's treatment of schwa is relatively brief, many of his examples are useful as confirmations of patterns reported by other authors.

4. Dauses (1973) prepared two extensive written questionnaires, asking students and adults to make conscious judgements on schwa loss or retention in given environments.[1] The absolute figures in such a study are always suspect, but Dauses' work does contain a great deal of useful information and has confirmed some important patterns of schwa loss in current French.[2]

5. Bazylko (1976) prepared a list of all the words given in the Petit Robert dictionary as beginning with [CəC(C)]. He placed these words in short sentences so that the schwa-containing words were found (a) after a word ending in a vowel, and (b) after a word ending in a consonant. The sentences were read by ten informants between the ages of 20 and 40, all raised in Paris and all of above-average education. They were asked to eliminate all schwas "susceptibles, au jugement de l'informateur, de disparaître en prononciation naturelle" (Bazylko 1976, p. 64). When a schwa was retained, the informant was questioned to attempt to ensure that the retention was not due to the fact that he was reading rather than speaking informally. The result is a valuable body of data on the behaviour of schwa in group-medial word-initial position.

6. Lucci (1976) studied variations in schwa behaviour due to (a) socio-economic status, and (b) stylistic factors (the type

of speech). The first axis of variation is represented by three university professors as against two workers. Variation of the second type is obtained by recordings of university lectures and reading (for the highly educated informants only), and conversation (for all the informants). A total of 2853 examples of schwa (lost and retained) was obtained. The results are of value in confirming the relevance of the two factors, although much work remains to be done.

7. Malécot (1976) provides an analysis of 10,981 schwas (lost and retained) in a corpus of "50 surreptitiously recorded natural conversations" of "the educated middle-class of Paris" (Malécot 1976, p. 95). The result is a body of data which is useful in clarifying schwa behaviour in a number of positions of informal standard French.

The information available from the three types of direct discussion of schwa loss as enumerated above has been supplemented by data counts from three sources:

1. P.J. de Béranger (1780-1857) wrote six poems (1812-1823)[3] in which he made use of a non-standard orthography to represent certain pronunciations which he considered to be representative of the working class. A lost schwa is shown by an apostrophe. The counts of schwa loss and retention made for the present study are discussed below by environment. Although a relatively small number of instances are involved, these data are extremely important because of their early date and because

they represent one of the very few sources to show schwa behaviour in the speech of the common man.

2. About 1890, Eduard Koschwitz had a number of eminent Parisians read extracts from a range of written works, including stories, lectures, sermons, plays, and poetry. He transcribed what he heard and published the transcriptions together with the normal orthography (Koschwitz 1893). The result is a highly accurate representation of very formal standard French from the 1890's. Analysis of schwa loss and retention was made from the four stories which begin the book (as read by Alphonse Daudet - pp. 1-9, Emile Zola - pp. 11-17, Paul Desjardins - pp. 19-31, and Edouard Rod - pp. 33-41), a lecture by Gaston Paris (pp. 43-55), and an extract from *Ie Mariage de Figaro* read by François Got (pp. 89-99).[4] The results are of great interest as illustrations of schwa behaviour in formal contexts.

3. Gendron (1966) provides a complete phonetic transcription (and brief analysis) of four stories told (not read) by an essentially uneducated French-Canadian from Saint Anselme, Quebec.[5] The examples of schwa retention and loss have been counted. The great advantage of these data is that they come from a more-or-less natural situation (although the subject knew that his words were being recorded, he did not know that a linguistic analysis might be based on them). The stories are also of value as the only available examples of phonetically transcribed schwa in a running text in an everyday French dialect (as opposed to careful standard speech).

The fundamental difference between the data of Period 2 (which do not include information on frequency of loss in running texts) and those of Period 3 (which do) makes it difficult to compare the extent of schwa loss in the two Periods. The only valid procedure is to describe the Period 3 situation in detail, independently of the previous behaviour of schwa. It will nonetheless prove possible to trace the overall development of schwa loss in most positions in spite of the discontinuity in the data.

4.1.2 - The general influence of the style and the speaker on schwa loss -

Data on Period 3 schwa loss are available from many different styles. They range from highly formal (e.g. lectures and reading) to ordinary conversational speech; the information collected to date indicates that stylistic factors are of considerable importance in determining whether a given schwa will or will not be lost. The global influence of such factors is discussed here; where information on their operation in a particular position is available, it is summarized in the appropriate section below. The importance to schwa loss of the socio-cultural status of the speaker is also mentioned in this section.

There is general agreement that the more rapid and informal the speech, the more schwas are lost (compare section 3.1.2 on the situation during Period 2). Martinon (1913, pp. 181-2) writes as follows:

> ...il y a souvent plusieurs façons de prononcer les mêmes phrases, même sans parler des cas où l'on tient à mettre en relief une syllabe particulière. D'une façon générale les *e muets*, quels qu'ils soient, peuvent tomber en plus ou moins grand nombre, suivant les personnes, suivant les lieux, et surtout suivant l'allure du débit.

Comparable statements are made by Pernot (1929, p. 116), by Grammont (1930, p. 118), and by Pulgram (1961, p. 309). Léon (1971, p. 133) examined ten discourses made by President de Gaulle (1959 - 1962) and notes that most schwas are pronounced when the speech is highly oratorical:

> Quant aux suppressions de E caducs, elles n'interviennent guère que là où l'usage le plus fréquent les tolère, après une seule consonne prononcée....Il s'agit là de passages où le ton devient, pour un temps généralement court, familier ou bonhomme. Lorsqu'au contraire le ton se fait très oratoire, on voit apparaître les E caducs comme supports syllabiques d'insistance.

Compare also Léon (1971, p. 78):

> ...on peut affirmer que, (toutes conditions égales par ailleurs), le nombre des E caducs prononcés décroît à mesure qu'on s'éloigne d'une certaine conception littéraire de la langue.

Both Martinon and Léon, in the material cited above, mention the importance of emphasis. A number of authors state that, where a word containing schwa is to be emphasized, its schwas are normally kept, even where such retention is extremely unusual in unmarked speech (see also Grammont 1894, p. 86). Examples of this phenomenon are given in the appropriate sections below.

Another general stylistic factor is discussed by Léon (1966, pp. 120-1; 1971, p. 76): schwas tend to be pronounced in any context

where a maximum of clarity (redundancy) is required to aid decoding, for example in second language classrooms and on the telephone. An example of a syntagmatic context where maximum clarity is generally required is mentioned by Pernot (1929, p. 117): where a word is cited (used as an "accidental noun") and is preceded by a form ending in schwa, the latter is frequently pronounced (e.g. *l'a de 'avoir'*). In such cases, retention of the schwa preceding the cited form helps to make it stand out, thus increasing the chances that its unusual syntactic function will be immediately understood by the hearer.

A systematic examination of the influence of style on schwa loss is made by Lucci (1976). For his three well-educated subjects, the speech situation and the type of material which serves as the cue appear to be of fundamental importance. Lucci studied four types (the figures show the percentages of all schwas which were retained in the given type):

(a) Conversation - 44.8% (average of two subjects only).[6]

(b) Reading of a newspaper extract, not previously known to the subjects - 44.5% (average of all three subjects)

(c) University lecture - 38.4% (average of three)

(d) Reading of a transcript of the lecture, hence well known to the subjects - 33.6% (average of three).

At first glance, these results are startling: if the formality of the speech is the only relevant factor, one would expect the conversation to show the fewest number of schwas, not the most. For Lucci (1976, pp. 90-3) the most important factor here is the

difference between prior knowledge of the material (re-reading the lecture) and the lack of such prior knowledge (sight reading and conversation). In the latter case, more schwas are pronounced in order to facilitate encoding: their presence slows the rate of speech and provides more time for the speaker to decide what he is going to say. The probable validity of this inference is increased by the fact that the types which show the greatest percentage of pronounced schwas also show the most hesitation pauses and lengthened syllables (which, like the pronunciation of schwa, are devices which slow the speech down). More work is required to solidly establish this correlation: a study based on two or three informants cannot be considered to do this.

Lucci's results show that individual differences also play a major role: in most cases the differences among subjects are greater than those between the averages for each type of speech. For example, the figures for the reading of the lecture transcript range from 26.4% to 40.6%, while those for conversation are 35.9% and 53.8%. Such variations are another indication that more work is required. A large-scale study, say with 40 informants, might provide conclusive evidence that individual variations are *more* important than is the type of speech.

The global figures for schwa loss in conversation reveal a strong socio-cultural influence. The 44.8% retention figure for the well-educated subjects contrasts with 26.0% for the lesser-educated ones (Lucci 1976, p. 93).[7] Lucci explains this difference as being due

to a lack of use on the part of the poorly educated informants of the stylistic devices for slowing speech, as used by the highly educated subjects. The former speakers "procèdent comme s'ils ignoraient ou n'utilisaient que très partiellement l'aptitude de certains schémas prosodiques et phonétiques à faciliter certains types de messages oraux" (Lucci 1976, p. 94). This hypothesis is reasonable, and is certainly the only obvious explanation for the very high retention rate in the conversation of the educated informants. It would be interesting to try to elicit very informal speech from these same subjects, using procedures similar to those of Labov (1966): one would expect the number of pronounced schwas to drop drastically. The results obtained by Lucci further underscore the findings of Labov to the effect that speech variations due to stylistic level and to socio-cultural influence are inextricably linked and must be studied together.

It may be considered, then, that the importance to the schwa retention rate of style and socio-cultural class has been demonstrated. But many details remain to be elucidated: full-scale studies with a sizeable number of informants would be very useful.

4.2 - Schwa in group-initial position -

Schwa does not appear in absolute initial position in standard French; it is always preceded by at least one consonant.[8] It occurs in clitics (*je*, *se-ce*, *le*, *me*, *ne*, *de*, *te*, *que*) and in the first syllable of full words (e.g. *Venez ici*, *Prenez le train*). Where the

schwa is preceded by a consonant cluster, as in the second example, it is virtually always retained (Fouché 1959, p. 120; Dell 1973, p. 227).

When a single consonant precedes the schwa, the latter may drop regardless of the consonants which surround it (just as in Period 2). This is clearly shown by Table 4, in which are charted the two-member consonant clusters produced in all the available examples of schwa loss in group-initial position.[9] However, retention in running speech is relatively frequent. The speech analyzed by Koschwitz (1893)[10] and that of President de Gaulle in public discourses (as analyzed by Léon 1971, p. 133) show universal retention in group-initial position (Koschwitz' subjects show 75 examples). There are three sets of data which indicate that schwa is more stable in group-initial position than elsewhere: (1) Koschwitz' subjects show universal retention only in group-initial syllables. (2) Malécot (1976, p. 99) found that the schwa in clitics dropped 76% of the time in group-medial position before and after a single consonant (289 examples of loss out of 379), while in group-initial syllables the loss rate is only 20% (26 out of 129). (3) For all five types of speech studied by Lucci (1976, pp. 90-93 and 96), average retention was greater in group-initial position than in all positions taken as a whole. In some speech types the difference was very marked: e.g. 38.4% retention overall as against 69.5% in group-initial position (lectures), and 26.0% overall contrasted with 63.9% (conversation - workers).[11]

Table 4

Two-member clusters resulting from schwa loss in group-initial position

1st Cons. \ 2nd consonant	p	b	t	d	k	g	f	v	s	z	š	ž	m	n	l	r
p			X												X	
b															X	
t							X						X	X		
d							X	X	X				X	X	X	X
k	X		X				X	X				X		X	X	X
g																
f									X							X
v														X	X	
s	X	X	X	X	X									X	X	X
z																
š								X					X	X	X	
ž	X	X	X	X	X	X	X	X	X		X		X	X	X	X
m				X						X				X		
n	X	X	X		X		X	X	X						X	
l	X	X			X			X					X			
r	X		X	X	X		X						X			
	p	b	t	d	k	g	f	v	s	z	š	ž	m	n	l	r

Table 4 hints that loss is disfavoured between stops (the upper left corner). Virtually all authors agree that loss is not equally probable around all consonants, but their hierarchies differ in detail. All consider loss to be more frequent when the first consonant is a non-stop (e.g. *Serein*, *Le bon*...) than when it is a stop (e.g. *Petit*, *Que voulez-vous?*) - see Martinon (1913, pp. 168 and 176-7); Grammont (1930, p. 107); Leray (1939, pp. 178-9); and Fouché (1959, pp. 121-2). Among these four authors, Fouché and Martinon distinguish cases where the first consonant is a fricative from those where it is a liquid or nasal (loss being especially favoured in the former case), while Grammont and Leray consider loss to be equally probable after each of the three consonant types.

Disagreement also exists over the case where the first consonant is a stop. Three authors state that schwa is usually retained after a stop, regardless of what type of consonant follows the vowel (Martinon 1913, p. 177; Leray 1939, p. 178; Fouché 1959, pp. 121-2). By contrast, Grammont (1930, pp. 107-8) and Sten (1966, p. 33) consider that loss is more frequent before a non-stop (e.g. in *demain*) than before a stop (e.g. in *Que ton nom*...); and Dell (1973, p. 227) states that, in his own idiolect, schwa is retained obligatorily only between stops.

Delattre (1966, p. 31) attempts to attach figures to the loss of schwa in group-initial clitics. These are subjective, based on his years of observing French pronunciation: schwa elides about 9/10 of the time in *je*, *se-ce*; 3/4 of the time in *le*; 2/3 in *me*, *ne*; 1/2 in *de*;

and only 1/3 of the time in *te, que*. Klausenburger (1970, pp. 72-3) ran a simple experiment in which a native speaker of French read a list containing sentences which began with all possible combinations of [CəC-] where a clitic stood in initial position. The schwa was dropped without exception in *je, se-ce, le, me,* and *ne* (all those clitics whose consonant is a non-stop). Loss also occurred in *de, te, que* where a non-stop sound followed: hesitation was shown in the case of *de* + stop, and the schwa was retained in *te, que* + stop. Malécot (1976, p. 99) reports the following figures for loss in group-initial position: 44% (24/54) loss after a fricative, 23% (10/44) loss in *re-*, 4% loss (2/47) after a stop, and 0% loss (0/24) in *le* (nasals are not mentioned).

When all these data and remarks are combined, a fairly clear picture emerges: schwa loss is commonest after a non-stop, and where the first consonant is a stop loss is favoured where the second is a non-stop (although it is possible even between stops). But the apparently contradictory evidence reported in the previous paragraph shows that more extensive studies are needed to establish the details.

In view of the flexibility of schwa behaviour in group-initial position, it is not surprising that a great deal of variation is observed from speaker to speaker and from style to style: compare Sten (1966, p. 33), who criticizes the rigid rules given by Grammont. The data reported above from Koschwitz (1893) and Léon (1971, p. 133) are at the opposite extreme in this matter from those in Béranger (1834). In the formal speech of Koschwitz' informants and of General

de Gaulle, retention was universal, while 39 out of 45 instances were dropped in the poems which Béranger intended to characterize informal working-class speech.

The relevance of style is also demonstrated by Lucci (1976, pp. 95-6). The average number of group-initial schwas retained by his educated subjects ranges from a high of 74.4% in the newspaper reading to a low of 52.2% in conversation. As regards the differences between the conversation of the university professors and that of the workers, Lucci's results seem surprising: the workers show greater average retention (63.9%) than the professors. This appears to be in contradiction with the Béranger - Koschwitz/Léon data. Clearly more research is required on the relevance of education and other socio-cultural factors to the behaviour of group-initial schwa. If it turns out that lesser-educated speakers tend to avoid loss in certain situations, this could be because they wish to avoid the formation of group-initial consonant clusters (compare note 8, on the appearance of schwa in absolute initial position).

At least two non-phonotactic factors (in addition to style) are known to influence schwa loss in group-initial position. The first is the frequency of the word or phrase in which the schwa occurs. Genlis (1901, p. 80) writes that loss is commonest in "phrases toutes faites.... qui font partie de la menue monnaie de la conversation". It will be seen that frequency is an important factor in other positions where schwa is fairly frequently retained. The second item is the length of the group which begins with [Cə-]. Rousselot (1891,

p. 307) reports that, in the patois of several members of his family (from Cellefrouin, near St. Claud in the Department of Charente), loss occurs more readily when the syllable following the initial schwa is long (e.g. in [šəvā]) than when it is short (e.g. in [šəmĭ]). Dell (1973, p. 228) writes as follows:

> ...schwa tombe d'autant plus facilement que le groupe phonologique au début duquel il figure est long, i.e., d'autant plus facilement qu'il est plus éloigné de l'accent principal du groupe....Il tombe avec une facilité croissante dans les trois phrases suivantes: *venez*,... *venez ici*,...*venez boire un verre*....

As suggested by Dell, these differences in ease of loss are likely due to the influence of the accent. A similar factor is important in group-medial position (see section 4.6.2).

The above discussion applies to schwa before a single consonant. Loss may also occur before a cluster. The clusters in attested examples are all of the types [OG] (e.g. *Jə suis*..., *Dəpuis*...), [OL] (e.g. *Cə train*...), or [OLG] (the only example is *Jə crois*...). The possibility that loss before a cluster is less common than that before a single consonant has been raised for the first time by some data in Malécot (1976, p. 99). He found that loss occurred 20% of the time before one consonant (26/129) but in only 4% of the cases before two or more (2/50). These findings are in conflict with all previous thinking on the subject: no other author mentions the matter, and there is no evidence of a difference in behaviour during Period 2. Clarification must thus await further research.

4.3 - Sequences of schwa in group-initial position -

Schwa also occurs in the group-initial syllable where the vowels of the succeeding syllable or syllables are schwa. Among two-schwa sequences, the following word-type combinations occur: clitic + clitic (e.g. *Je ne veux pas*), clitic + word-initial (e.g. *Je demande*...), and word-initial + word-medial (e.g. *Revenez*). Sequences of more than two schwas are discussed towards the end of the section.

A number of authors have provided rules, based on the type of consonants which appear before and after the first schwa, to attempt to describe which of the two schwas is normally lost. The rules are as follows (from Grammont 1894, pp. 84-5; Grammont 1930, p. 108; Leray 1939, pp. 178-80; and Fouché 1958, p. 527): (1) The first schwa is lost and the second retained where the first consonant is a non-stop and the second is a stop (e.g. *Jə te dis*). (2) Otherwise, the first schwa is retained and the second is lost - in non-stop + non-stop (*Je nə sais pas*) and stop + any consonant (*Que régardes-tu?*).[12]

All three of these authors note that their rules are not absolute. Grammont (1894) admits "some fluctuations", except where the first consonant is a stop, but he does not elaborate. Leray states that violations occur in all cases, and quotes a number of examples; among them are *Jə le vois*, *Tə retrouves-tu?*, and *Ce pətit*.... And Fouché, although he presents the rules in an absolute manner, adds the following general comment: "Tout cela, bien entendu, dans le français dit correct, mais pas nécessairement

dans le parler populaire".

The available direct evidence demonstrates clearly that schwa behaviour shows great variation in this position. Martinet (1945, pp. 53-8) asked his informants which of the three pronunciations *j'me dis*, *je m'dis*, or *je me dis* they found "la plus naturelle". For northern speakers only (i.e. not including those from the Midi) the results were: 55% favoured *je m'dis*, 25% *j'me dis*, and 20% *je me dis*. Malécot (1976, p. 100) found 149 instances of group-initial two-clitic sequences. Both schwas were retained in 40 cases (27%), the first was lost and the second retained in 27 instances (18%), and the second was lost with retention of the first in the remaining 82 cases (55%). Excluding the instances of double retention, 14 out of 109 cases (13%) violate the rules cited above. Thus, Malécot's results show that double retention is common, but that where one of the schwas is lost, it is usually the one predicted by the traditional rules. The subjects studied by Koschwitz (1893) show very frequent retention of both schwas (9 out of 12 instances), as befits their very formal style. A similar tendency to retain consecutive schwas was one of the features of President de Gaulle's oratorical style (Léon 1971, p. 133).

Style and other non-phonetic factors have a very important influence on schwa behaviour in this position. Dauzat (1950, p. 108) writes:

> Les règles qu'on a cherché à établir à ce sujet sont assez artificielles, et les variantes sont nombreuses, même pour une région et un milieu donnés: c'est surtout une question

> d'habitudes individuelles et valeurs affectives, suivant qu'on veut mettre en relief tel ou tel mot: *je l-dis*, et *j-le dis*, *je t-parle*, et *j-te parle* s'entendent également.

Genlis (1901, pp. 83-4) discusses the matter of accentuation in greater detail. In *Je* + verb in *re-*, for example, the schwa of *je* is pronounced if the speaker desires to emphasize the *moi*, while that in the verb is retained if the prefix *re-* is to receive the main accent: *Je réfuse/Jé refuse*, *Je régrette/Jé regrette*, etc. In the structures *Je* + *me*, *te*, *le*, the pattern is similar: *Je lé crois* emphasizes the *moi*, while *Jé le crois* draws attention to the complement represented by the pronoun *le*.

Variation is also the keynote in multi-schwa sequences. The proponents of the system of phonotactic rules state that the first schwa of the sequence is lost or retained according to the rules for sequences of two schwas, with alternate loss thereafter. But many violations of this rule have been observed. Again, style and emphasis are very important factors. Dauzat (1950, p. 109) states:

> ...quand trois monosyllabes se suivent, l'élimination du second, pour être plus fréquente, n'est pas générale: pour <<je te le dis>>, par exemple, on entend toutes sortes de variantes suivant l'intonation: *je t-le dis*, *j-te l-dis*, *j-t-le dis* (plus vulgaire), jusqu'à *je te le dis*, si l'on commence à s'irriter.

Compare also Genlis (1901, pp. 83-4), where a number of other examples are given, among them *je mé relève/jé me rélève* and *je té retiens/jé te rétiens*.

It is clear, then, that non-phonetic factors are very important in determining schwa loss and retention patterns in group-initial

sequences. However, phonotactic influences also play a role - sequences where the first consonant is a stop are likely to show retention of the first schwa, especially in careful styles. It may be noted that this pattern fits with the fact that retention of a single schwa in group-initial position is more probable if the consonant preceding it is a stop than if it is a non-stop (see the previous section).

4.4 - Schwa in group-final position -

As discussed in section 3.3 above, loss in group-final position was very common by the middle of Period 2, regardless of the consonant or cluster which preceded the schwa (except in positive imperative constructions such as *Bats-le*). Loss in words in group-final position is almost universal today, even when a two or three-consonant cluster precedes the schwa.[13] Such loss is found in non-standard as well as standard dialects (on standard French, see Martinon 1913, p. 158; Fouché 1959, p. 94; and Dell 1973, p. 224; and on Canadian French compare McArthur 1968, p. 51). Examples: *Elle est trop petitø*, *Il la regardø*, *C'est un bel arbrø* (on cluster reduction, see below).

The high frequency of loss in group-final position is confirmed by all the available data. Koschwitz' informants show loss after a single consonant in 165/180 cases, and after a cluster in 75/82 cases. Even in the very formal style used in these texts, then, schwa is usually lost after a cluster as well as after a single consonant. The precise consonants involved have no influence on the pattern of loss. It occurs after all single consonants; and after [LO], [OL], [OO],

and [LL] clusters. The data show conclusively that loss is not retarded after the cluster type [OL] - there are 50 examples of loss against only 3 of retention. In the informal Canadian French of Gendron's informant, all cases of group-final schwa in words are lost: there are 16 examples after a single consonant and 12 after a cluster.

The fact that schwa is lost after a cluster does not necessarily indicate that a group-final cluster is fully integrated in the phonotactic system: partial or complete reduction of these clusters is very frequent. In careful standard French, reduction is confined to clusters of the form obstruent plus liquid or nasal, and is never complete.[14] When it occurs, it involves a devoicing of the liquid or nasal (e.g. *quatre* [katr̥], *cadre* [kadr̥], *cercle* [sɛrkl̥], *asthme* [asm̥]) - see Lesaint (1890, p. 46), Nyrop (1914, §§313, 320, and 382, pp. 305-7, 315, 364), Pernot (1929, pp. 133-4),[15] Fouché (1959, p. 95), and Malmberg (1969, p. 76). Data from Koschwitz (1893) confirm that, in careful speech, devoicing is common but complete loss is avoided. There are 36 cases of [OLø] where the liquid is shown as fully articulated, 14 cases where it is shown as partly articulated (transcription is with a raised small symbol, e.g. *quatre* [katʳ]), and none where it is entirely lost. No examples of [Om] clusters occur among these data. Koschwitz' informants also show that, in standard speech, clusters of the types [LO] and [OO] (e.g. *marchø*, *perdø*, *justø*) are not reduced: all examples show both consonants to be fully articulated (compare also Pernot 1929, p. 133).[16]

In informal standard speech, by contrast, complete loss of the

last consonant in a group-final cluster is very common. Loss in such forms as *rendr/ø*, *articl/ø*, *catéchism/ø*, and *rest/ø* is noted by Nyrop (1914, §§313, 320, and 382, pp. 305-7, 315, 364),[17] Pernot (1929, pp. 133-4), and Leray (1939, p. 170).

Consonantal weakening appears to be even more prevalent in Canadian French than in the informal standard. McArthur (1968, pp. 52-3) quotes *regard/ø* and *remarqu/ø* with unreleased [d] and [k] respectively. Gendron's informant shows [-CC/ø] in twelve examples. The schwa is lost in each case, but the final cluster is fully articulated in only one of the twelve (in *porte*). Among the other eleven, the second consonant of the cluster is completely lost in five cases (e.g. *chambr/ø*), and is reduced in the remaining six (e.g. *outard/ø* - transcribed [...^{r}d] or [...rd]).

It is clear, then, that the pressure to lose schwa in group-final position is very strong - retentions are unusual and occur only in the most formal styles. The consonant clusters produced by the loss of schwa after two consonants are frequently reduced. Such reductions are more common in non-standard than in standard dialects, and within the latter occur more extensively in informal than formal styles.

4.5 - Schwa in group-medial position after a single consonant -

Loss during Period 3 is very common in this position. The precise degree of regularity observed depends primarily on the position of the schwa with respect to word-boundaries. In subsections 1 through 4, each of the four characteristic word-positions is discussed in some detail. Cases where the schwa is followed by a cluster consisting of

liquid + [j] constitute a special case and are discussed in subsection 5. The behaviour of schwa between identical consonants is discussed in section 4.8 below.

4.5.1 - Schwa in word-final position -

Loss of schwa in word-final position after a single consonant had become usual by the middle of the 17th century. It is not surprising, therefore, that such loss is considered to be regular by most Period 3 authors who comment on it (compare Fouché 1959, p. 95; Delattre 1966, p. 19; and Dell 1973, p. 224).[18]

In ordinary informal conversation, loss today is virtually universal. The data of Gendron (1966), from oral story-telling, show such loss (33 instances). Word-final schwas may be retained when it is desired to emphasize the word in which they appear, but this possibility is not realized very often. Brent (1971, p. 43) quotes the Canadian French example *C'est une robe, je lui dis*, pronounced [##st#ynə#rɔbə##ž#i#dzi##].

Data on the behaviour of schwa in formal styles is conflicting. On the one hand, the transcriptions of Koschwitz (1893) show loss most of the time (in 210 out of 217 instances). But on the other, the study of Léon (1971, pp. 133-4) on the oratorical style of President de Gaulle and that of Lucci (1976, pp. 98-9) show appreciable amounts of retention. Lucci's well-educated informants show retention rates varying from 9.5% in the re-reading of the lecture transcript to 22.4% in conversation. Much work remains to be done to elucidate the very complex influence of style and speech situation on schwa retention in group-medial word-final position.

4.5.2. - Schwa in word-medial position -

Loss here also was usual in the 17th century, and is quite regular today (see Genlis 1901, p. 37; Fouché 1959, p. 98; Delattre 1966, p. 20; and Dell 1973, p. 229). It is universal in casual Canadian French: Gendron (1966) shows loss in all nine examples which appear in his texts.

Retention in formal speech situations is considerably more frequent in word-medial than in word-final position. Koschwitz (1893) shows 18 retentions out of 50, giving a retention rate of 36% as contrasted with only 3% in word-final position. Lucci (1976, pp. 98-9) found that retention was greater in word-medial position in all the types of speech which he studied. Examples include 39.6% vs. 17.2% in the lectures, and 23.3% vs. 9.0% in the worker's conversation. A similar favouring of loss is observed among word-final schwas after two consonants (see section 4.6.1).

4.5.3 - Schwa in word-initial position -

By the 17th century, loss in word-initial position had become comparable in extent to that in the other positions in the word (see section 3.4). Although loss in the first syllable of words is still quite general (Mende 1880, p. 92; Herzog 1913, p. 208; Fouché 1959, p. 98; Delattre 1966, p. 20), many authors note that retention here is fairly frequent during Period 3.

The data from Koschwitz (1893) indicate that, at least in formal styles, schwa is retained more frequently in the first syllable of words than elsewhere. Koschwitz' informants show retention in 81% of the cases (39 out of 48): this contrasts with 36% in word-medial

syllables and 3% in word-final position. Variation among these three positions is much less marked in the poetry of Béranger (1834): only 17% retention is found in word-initial syllables (4 examples out of 24), as against 7% in word-medial and 10% in word-final syllables. And Gendron's informant shows schwa loss in all 10 word-initial examples; loss is universal also in the other two positions in the word.

Delattre (1966, pp. 21, 26) provides a general description of the non-phonotactic factors behind the tendency to retain schwa in word-initial syllables. He states that, while phrases like *on redonne* and *sa revue* usually show loss,

> ...il suffit de quelque insistance, de quelque ralentissement du rythme, ou autre effet, pour que l'ə réapparaisse...Le reste de vitalité de cet ə est dû, selon toute apparence, à sa position initiale...la position de la syllabe donne à l'ə un poids psychologique qui empêche sa syncope d'être totale...

The desire to emphasize the word containing the syllable-initial schwa is also mentioned as a motive for retention by Genlis (1901, p. 98) and Dauzat (1950, p. 108). Lucci (1976, pp. 101-2) found that his highly educated subjects made considerable use of a contrastive stress/length accent falling on the initial syllable of words. In every such case where the first vowel of the word was a schwa, it was pronounced. Léon (1971, p. 76), in his observations of the speech of radio announcers, found some words where this pattern did not hold, but it is clear that it frequently does.

Words which contain schwa in their initial syllables do not all

show the same average retention rate. The study by Bazylko (1976, pp. 68-72) showed some words where the schwa was always retained (e.g. *peton*, *fenaison*, *veloutier*, *merisier*, and *relent*), a few where it was always lost (e.g. *chelem* and *peluché*), and a great many where some informants only (ranging all the way from one to nine) showed loss (e.g. *secourir*, *cheviller*, *menin*, and *relecture*). This variation is principally due to the following two factors:[19] (1) Words of low frequency, especially learned or archaic forms, show much more frequent schwa retention than do common everyday words (Herzog 1913, pp. 208-9; Pernot 1929, pp. 113-4; Dauzat 1950, p. 108; Dell 1973, p. 230; and Bazylko 1976, p. 80). Examples of rare words which normally retain schwa in all contexts include *belette*, *besace*, *besant*, *chenu*, *felouque*, and *guenon*. (2) Proper nouns, including both place and family names, frequently show schwa retention (Pernot 1929, pp. 115-6; Sten 1966, p. 35; and Dell 1973, p. 230). Examples: *Besançon*, *Nemours*, *Denis*, *René*, *Lesage*, *Seguin*.[20]

Because of the influence of frequency and the special status of proper nouns, a number of words have traditionally shown extremely frequent schwa retention, at least in careful speech.[21] Many authors provide more-or-less complete lists of such words: see for example Malvin-Cazal (1846, p. 26) and Mende (1880, pp. 93-113). It appears, however, that absolutely regular retention in formal styles is a product of normative pressures: prescriptive orthoepists, like Malvin-Cazal, noticed that the syllable-initial schwa of certain words was very frequently retained, and decreed that this retention should be

universal. These pressures are gradually weakening even in the most careful speech. Genlis (1901, p. 94) states that *besoin* and *redingote* used to belong to the list but that loss is now sometimes found. And Leray (1939, pp. 174-5) refers to loss in words like *femelle*, *peser*, *guenon*, and *faisons* where retention was formerly virtually universal. These changes may be seen as a strengthening of the influence of the phonotactic pattern by which group-medial schwa is usually lost after a single consonant,[22] at the expense of the other pertinent influences, including normative ones, which formerly resulted in retention.

In informal styles and non-standard dialects, normative pressures toward retention have never been as strong as they were in standard speech, but retention was nonetheless frequent. Bauche (1928, p. 53) gives a list of words which usually show retention in popular Parisian (e.g. *bedaine*, *menotte*, *peser*), but admits that loss is also found in many of them. It therefore appears that the tendency toward retention of schwa in word-initial position after a single consonant is gradually weakening in all dialects. As with schwa in all positions, retention remains most common in very formal styles.

4.5.4 - Schwa in clitics -

The major clitics of Period 3 are those belonging to the first class described in section 3.5 above: *que*, *te*, *de*, *ne*, *me*, *le*, *se-ce*, and *je*.[23] Loss is usual today in all these clitics in group-medial position following a word which ends in a vowel (Mende 1880, p. 43;

Fouché 1959, p. 98; Delattre 1966, p. 24); this pattern has been established since the 17th century.

As in word-initial syllables, however, retention in clitics is fairly common. Schwa is retained more often in slow careful speech than in rapid everyday varieties (Delattre 1966, p. 26); schwa may be retained to provide an accent on the words associated with the clitic, e.g. *C'est ce contrat et non l'autre* (see Genlis 1901, p. 98).[24]

Koschwitz' data confirm that schwa retention in clitics is common in formal styles of the standard language: there are 118 retentions in 163 examples.[25] Further evidence is provided in Lucci (1976, p. 97), who shows higher than average retention of schwa in group-medial clitics. In casual everyday speech, however, loss is the rule: Béranger's poetry shows 93 cases of loss out of 100 examples, while Gendron's Canadian informant shows universal loss (27 examples). An intermediate result is found among the informants of Malécot (1976, p. 96), who show loss 71% of the time.

4.5.5 - Schwa before [LG] clusters -

It was noted in section 3.2.2 that a tendency to retain schwa in the position [OəLj] apparently made itself felt during the latter part of Period 2. This tendency, which persists today, appears to have its basis in the phonotactics of the sequences involved. However, the class of [CəCG] sequences in general has attracted the attention of many grammarians, some of whom have provided

overgeneralized rules concerning them. It is the aim of this section to eliminate the exaggerations from these rules and to provide a hypothesis as to why schwa is frequently retained in some types of [CəCG].

The key to this hypothesis is an analysis of the three-member clusters and sequences ending in a semivowel which occur etymologically (where no schwa is involved). In standard French in word-medial position, the following classes of [CCG] sequences occur (examples are provided):

(1) [COj] - *nous palpions*, *obvier*, *ornière*

(2) [COɥ] - *vertueux*, *luxueux*, *transmuer*

(3) [COw] - *espoir*, *parfois*, *sournois*

(4) [CLɥ] - *construire*

(5) [CLw] - *emploi*, *effroi*

However, [CLj] no longer occurs etymologically within words, except where the first consonant is a liquid (*parliez* [parlje], *ourliez* [urlje]). Forms like *(vous) voudriez*, *ouvrier*, and *sanglier* show an [i] following the liquid.[26]

In group-initial position, the only two types of [CCG] which occur are [OLɥ] (e.g. *pluie*, *bruit*) and [OLw] (e.g. *gloire*, *proie*): no [OLj] clusters occur. In addition, two-member clusters of the following types are common: (1) [Cɥ] - *lui*, *suite*; (2) [Cw] - *roi*, *toit*; (3) [non-L + j] - *fier*, *tiens*, *nier*; and (4) [lj] - *lion*, *lier*. The cluster [rj] is rare, however: the only common words in which it occurs are *rien*, and *rieur/riant* and related derivatives of *rire*. Note also

that the latter are frequently pronounced with an [i] - [ri(j)ær] etc. (see Robert 1973, pp. 1562 and 1564; and Martinet and Walter 1973, pp. 766-7).

Keeping these distributional facts in mind, let us approach the question of sequences of the type [CəCG]. It is generally agreed that sequences whose middle consonant is a stop or fricative do not show a significant degree of schwa retention: this occurs only where the middle consonant is a liquid and, to a lesser extent, a nasal. The following writers claim that schwa is retained in [Cənj] and/or [Cəmj] (e.g. *reteniez*, *nous semions*): Genlis (1901, p. 93); Rousselot and Laclotte (1902, pp. 146-7); Fouché (1959, pp. 100-1); and Malmberg (1969, p. 79). However, the tendency toward retention in this position is weak, as expected given the presence of some etymological [Cnj] sequences (*ornière*, etc.).[27]

The behaviour of the sequences [CəLɥ] and [CəLw] is similar to that of [Cənj/Cəmj]. Lombard (1964, pp. 25, 31) notes that speakers may retain schwa in phrases like *à celui*, *atteloire*,[28] but that there is no need to do so. This is what would be expected given the frequency of [CLɥ] and [CLw] clusters and sequences where no schwa is involved.

This leaves sequences of the form [CəLj]. Where the first consonant is a liquid, the schwa is lost much more frequently than otherwise (Genlis 1901, p. 93; Martinon 1913, p. 167; Lombard 1964, pp. 11-12): *bourrelier* is a frequently repeated example. This also fits with the consonant distribution, since [LLj] is possible within words but [OLj] is not.

Thus, sequences of the form [OəLj] and [Oə#Lj] show the major tendency toward schwa retention. This tendency is much stronger within words than across word-boundaries (Lombard 1964, pp. 6-7; Malmberg 1969, p. 79; compare also Grammont 1930, p. 115), a fact which presumably reflects the general tendency to retain schwa more frequently within a word than in word-final position.[29]

Another factor in the behaviour of [OəLj] sequences is that loss is more common before [lj] than before [rj] (Delattre 1966, p. 25). Compare also Grammont (1930, p. 115), who writes that word-final schwa tends to be retained before *rien*, but not otherwise.[30] Loss occurs readily before [lj] in the next word, e.g. *une lionne* (Grammont 1894, pp. 72-3). Some data from Mende (1880, pp. 144-5) confirm this difference for word-medial position: he heard four cases of loss in [Oəlj] (*batəlier*, *ratəlier*, *chandəlier*, *chancəlier*) but none at all in [Oərj]. This difference is almost certainly due to distributional factors: since [lj] is common in group-initial position it should also be possible in syllable-initial position, but since [rj] is rare at the beginning of groups it would be relatively unstable as a syllabic onset within a group.[31]

Dauses (1973) has provided the only statistical data available on the behaviour of schwa before [Lj]. In his first questionnaire, *ne dites rien* shows a rate of loss of 51.4% for students and 29.8% for adults, while *atelier*[32] loses its schwa in only 0.9% of students' responses (retention is universal among the adults). This confirms that the retention tendency is stronger within words than across word-boundaries;

it also shows that retention is common in the latter case, at least before *rien*. The third questionnaire confirms that *atelier* shows retention most of the time. Only 6.7% of the subjects responded with R1, while nobody responded with R2. Although these data confirm that schwa tends to be retained before [Lj], more information is needed to clarify the patterns in this position.

The distributional features noted in the discussion above leave little doubt that this retention tendency has a phonotactic basis.[33] All types of [CəCG] except [OəLj] are matched by corresponding [CCG] in word-medial position (e.g. *bourrelier* - *perlier*, *dépecions* - *Egyptien*): loss of schwa is relatively regular in these forms. By contrast, [OLj] does not occur in word-medial position, and loss of schwa in [OəLj] is quite rare. The latter sequences are dissolvable into [O + Lj], since both [lj] and [rj] occur in group-initial (although [rj] is rare); hence the loss of schwa from [OəLj] is partially supported by structures which do not involve schwa loss. This support is, however, much weaker than that provided for loss from other [CəCG], and this difference correlates with the observed difference in ease of schwa loss. The fact that [OLj] is at least marginally dissolvable is probably the reason why the schwa is not completely stable in standard French (that is, why schwa in [OəLj] does show some loss).[34]

4.6 - Schwa in group-medial position after a consonant cluster -

The present behaviour of schwa in this position is extremely complex. It depends primarily on the following factors, which are discussed in subsections 1-4: (1) the position of the schwa with respect to word-boundaries, (2) the number of syllables between the schwa and the end of the group: that is, the accent-bearing syllable, (3) the frequency of the word which contains the schwa, and (4) the phonotactics of the consonants surrounding the schwa. Some other factors have been suggested, but their influence is at best very minor. These include the absolute number of consonants surrounding the schwa (see the beginning of section 4.6.1 and note 35 below), and a desire to avoid assimilations of the consonants in the sequence which would result from schwa loss (see Dauses 1973, pp. 70-71).

Consonant sequences produced through schwa loss in this position are frequently reduced, as discussed in subsection 5. The final subsection contains a discussion of the insertion of a non-etymological schwa after the second consonant of a three-consonant sequence.

4.6.1 - Position of schwa in the word -

During Period 2, loss of group-medial schwa after two consonants was apparently more common in word-final than in word-medial position (see sections 3.2.3 and 3.3.2). The situation in word-initial position and in clitics is unclear due to a lack of data.

Most authors agree that loss today is most common in word-final

position. Grammont (1894, pp. 77-8; 1930, p. 114) states that, in standard French, loss is usual in word-final but is not found in the other positions. According to Fouché (1959, pp. 96-8), loss in word-final position occurs before a word beginning with one consonant but not before a word beginning with a cluster,[35] while loss in other positions is exceptional. Dell (1973, pp. 224-5, 229-30) writes that retention is optional in word-final but usual in the other positions (with one exception which is discussed below).[36]

The usage of Koschwitz' informants dramatically confirms that, in careful standard French, loss of schwa after two consonants is common only in word-final position (see Table 5). It must be noted, however, that retention is frequent in word-final position and that loss is found exceptionally in word-medial and word-initial syllables, and in clitics. Further evidence on the favouring of loss in word-final position is provided by Léon (1966, pp. 116-7). In an informal test, he found that the schwa in *une porte manquée* was lost 96% of the time, in *un porte-manteau* (a compound) 78% of the time, and in *un appartement vide* only 10% of the time. Pernot (1929, pp. 122-4) states that he himself never deletes schwa in word-medial position after two consonants, although he may delete it at the ends of words. He also studied two younger subjects who show some loss in word-medial position (1929, pp. 122-4). The data in Mende (1880, *passim*) confirm that loss is found in word-final (17 examples), word-medial (9 examples), and clitics (27 examples):[37] he gives no instances of loss in word-initial position. These examples from Mende are important because they confirm that loss is found occasionally even in very formal styles.

Table 5

Schwa behaviour by position in the word, in group-medial position after a consonant cluster: Data from Koschwitz

	Position				
	Word-final	Word-medial	Clitics	Word-initial	Total
Schwa lost	46(61%)	3(13%)	2(6%)	1(12%)	52
Schwa retained	29(39%)	20(87%)	31(94%)	7(88%)	87
Total	75(100%)	23(100%)	33(100%)	8(100%)	139

The study by Dauses (1973) was designed to elucidate the influence of position in the word on schwa loss after a cluster (see pp. 52-7). He shows that loss is quite common in (a) word-final position, and (b) word-medial position in all forms of the future and in the singular and third person plural of the conditional; and that loss is quite uncommon in word-medial position in other forms. Examples (all are taken from Q3):[38]

verbe[ɛ] russes - 60.0% (R1), 80.0% (R1 + R2)

porte[ɛ]rai - 71.1% (R1), 86.7% (R1 + R2)

bouleverse[ɛ]ment - 29.0% (R1), 53.4% (R1 + R2)

Other authors have noted that schwa loss is commoner in future/conditional forms than elsewhere within words (Genlis 1901, pp. 79 and 84; Dell 1973, p. 231). Dauses (1973, pp. 56-7) suggests that this may be due to the presence of other words in [rCr] (e.g. *perdrix*, *perdra*); that is, to phonotactic analogy.[39]

According to Dauses, schwa loss in word-initial syllables (e.g. *sept cərises*) is comparable in extent to that within words of one morpheme (p. 55), and loss in clitics (e.g. *avec də la crème*) is comparable to that in word-final position (p. 56). These claims are not well substantiated by his study, however, largely because of a shortage of data.[40] They seem somewhat unlikely *a priori* since schwas after a single consonant in word-initial position and in clitics show a greater tendency toward retention than do schwas in word-final and medial positions (see section 4.5 above).[41] In any case, more research is needed to clarify the behaviour in everyday speech of schwa after two consonants in word-initial position and in clitics. This could be done using a study similar to Dauses' (although preferably with some verification of what the subjects actually say), but with many more examples like *sept cerises* and *avec de la crème*.

4.6.2 - Position of schwa with respect to the accent -

The first author to discuss this factor in detail was Léon (1966,

pp. 116-20; see also 1971, pp. 73-6). In a test using as subjects 50 French professors at the University of Toronto, he found that schwa in word-final position after two consonants was lost 88% of the time when at least one syllable separated the schwa from the accented syllable (e.g. *une arme défensive*, *un porte-bouteille*), but only 6% of the time when the schwa fell in the syllable preceding the accent (e.g. *une arme courte*, *un porte-plume*). Similar results were obtained with a group of 32 French-Canadian professors at l'Université de Montréal.

Dauses (1973, pp. 49-52) brings strong confirmation to the theory that schwa is lost more frequently after two consonants when the schwa is separated from the accent by at least one syllable than when it adjoins the accent. All the relevant examples conform to this theory. Contrast the following typical pairs:

1. *resté pas* (accent on *pas*) - 37.8% (R1), 66.8% (R1 + R2)
   resté pas (group-interior) - 66.7% (R1), 84.5% (R1 + R2)
2. *appartément* (accent on *-ment*) - 6.7% (R1), 26.7% (R1 + R2)
   appartément (group-interior) - 11.1% (R1), 46.7% (R1 + R2)
3. *forcérait* (accent on *-ait*) - 51.1% (R1), 75.5% (R1 + R2)
   percéra (group-interior) - 84.4% (R1), 95.5% (R1 + R2)

Pairs 2 and 3 here show that this factor operates within words as well as over word-boundaries.

It may be noted that two remarks suggesting the relevance of the accent were made earlier in the 20th century. One is by Genlis (1901, p. 25), who states that word-final schwa is lost in *garde-forestier* and *porte-malheur* but retained in *garde-fou* and *porte-plume*. The other is by Pernot (1929, pp. 122 and 124), who gives two examples (one from his own pronunciation and one from that of a 25 year-old subject) which agree with the theory. Also, Dell (1973, p. 225) confirms that it operates in his speech in word-final position.

4.6.3 - The frequency of the word which contains the schwa -

It was shown in section 4.5.3 above that certain infrequent words tend to retain schwa in the first syllable, even when they follow words ending in a vowel. It appears that frequency is also relevant to the behaviour of schwa in group-medial position after a consonant cluster. Genlis (1901, p. 73) states that, while schwa is normally retained in this position, loss occasionally occurs in words "d'un usage très répandu". Léon (1971, p. 73), referring to word-final schwas where loss is favoured due to the position of the accent (see the previous section), states that retention is found only in rare words.

Dauses' study (1973, p. 72) contains the following forms which support the theory that schwa loss is more common in frequent than in infrequent forms (the less frequent form is given first):

1. *porté-faix* - 4.4% (R1), 37.7% (R1 + R2)

   porté-feuille 24.4% (R1), 48.8% (R1 + R2)[42]

2. *inculpéra* - 15.6% (R1), 51.2% (R1 + R2)

   forcérait - 51.1% (R1), 75.5% (R1 + R2)[43]

3. *versera l'argent sur votre compte* - 69.0% (R1), 86.8% (R1 + R2)

   percera la feuille - 84.4% (R1), 95.5% (R1 + R2)[44]

For the first pair of examples, the relevance of frequency is made clearer when the position of the compounds with respect to the accent is considered: loss in *porte-feuille* is more common than in *porte-faix* although the former is in accented position while the latter is not.

While these data support the notion that frequency is relevant to schwa behaviour in this position, the details of its relevance remain to be studied. This could be done by examining the average schwa retention rates in words of very different frequency but similar phonotactic type, placed in similar sentence environments.

4.6.4 - The types of consonants which surround the schwa -

During Period 2, loss of group-medial schwa after two consonants occurred in word-final position independently of the type of cluster ([OO], [OL], or [LO]) which preceded the schwa, while loss in word-medial position was largely restricted to schwas in [LOəL]. The aim of this subsection is to determine whether or not the precise consonants which surround a schwa in this position influence its behaviour in present-day French.

4.6.4.1 - Dissolvability of the consonant sequence resulting from schwa loss -

A number of authors have stated some version of the principle that schwa loss does not occur where the resulting sequence is undissolvable; that is, where it cannot be divided into an occurrent group-final cluster plus an occurrent group-initial cluster (see Herzog 1913, §205, pp. 201-3; Weinrich 1958, §289, p. 252; Weinrich 1961, pp. 14-15; Pulgram 1961, p. 317; and Klausenburger 1970, pp. 51-2). This theory is developed in detail by Weinrich and Pulgram: the two statements, while not identical in form, give the same results. Pulgram (1961, p. 317) writes as follows:

> (I) An /ə/ must be articulated where its omission would produce a non-occurring (by implication, non-permissible) consonant cluster within a syllable; (II) in all other cases the articulation of the /ə/ is optional, dependent on style and subcode as stated above.

The material which Pulgram refers to as being "stated above" appears on pp. 307-8: "The choice in the optional cases...is not determined by distributional factors, but has to do with the style employed by the speaker, which includes also the occasion on which the utterance is made."

The absolute distinction made by Pulgram between distributional and stylistic influences is contradicted by the material in sections 4.6.1 and 4.6.2: it is shown there that position with respect to word-boundaries and the group accent is of great importance in determining the frequency of loss of "optional schwas". These are clearly "distributional" (phonotactic) matters, as they involve the

position of schwa in the syntagm. Leaving this aspect of Pulgram's theory aside, we are left with the idea that loss is *possible* in all cases where a dissolvable sequence results.

The nature of this aspect of the dissolvability theory is clarified by Klausenburger (1970, p. 52):

> The phonotactic rules established by both Weinrich and Pulgram for the *e-caduc* are to be understood as setting up an optimal, or maximal, system which the language approaches. The phonotactic description proves its value if the language does not violate it, i.e. the /ə/ is not lost more often than these rules would permit. However, its value is not to be questioned if the contemporary language does not always reach the limit established.

Thus, the theory is considered to be strictly negative: it shows why loss is forbidden in certain positions but is not intended to help account for the varying frequencies of loss where this is permitted.

Dauses (1973, p. 65) points out the major problem with this theory as applied to the loss of single schwas or two successive schwas: it admits "pratiquement tous les groupes de consonnes qui peuvent ou pourraient résulter de la chute d'un *e* instable". Dauses himself makes no attempt to demonstrate that "practically all" the sequences which could result from schwa loss are dissolvable, but an examination of the various possibilities shows that this is in fact the case where a single schwa is involved.[45]

First of all, any sequence producible through schwa loss in word-final position or word-medial position before a morpheme boundary is fully dissolvable, since the cluster preceding the schwa can always occur in group-final position, often through the general loss of schwa

in the latter environment (see section 4.4). For example, [vr] is possible in syllable-final in forms such as *pauvre garçon* and *pauvreté* since it occurs in group-final (*pauvrǿ*); similarly syllable-final [kt] in *stricte prosodie* and *strictement* (group-final *strictǿ*), and syllable final [lm] in *calme plat* and *calmement* (group-final *calmǿ*). When a word-medial schwa occurs after two or three consonants within a morpheme (this situation is quite rare), it seems that the preceding consonant group can always be considered to be at least potentially possible in group-final position. Examples of such words include *marguerite* ([rg] occurs in group-final as in *orguǿ*), *tourterelle* (group-final [rt] exists, as in *cartǿ*), and *mercredi* ([rkr] does not exist in group-final, but there are the closely related clusters [rkl] as in *cerclǿ* and [rtr] as in *martrǿ*). Thus, it appears that all intervocalic sequences producible through schwa loss within morphemes are at least marginally dissolvable.

Potential loss of schwa after two consonants in word-initial syllables and in clitics yields a more complex situation, since the first two consonants of the resulting three-member sequence need not form an acceptable syllabic coda (e.g. [t̪f] in *sept fǿnêtres* [sɛt̪fnɛtr]). Whether or not such sequences are dissolvable turns on whether or not the last two consonants form an acceptable syllabic onset. Pulgram (1961, pp. 312-4 and 321-2) briefly discusses this question, contending that such group-initial clusters as [lv] from *Lǿvez-vous*, [vn] from *Vǿnez ici*, and [šs] from *Jǿ suis...* are marginal

at best (that is, not fully integrated in the phonotactic system of Modern French), since they occur in informal but not in formal standard speech. Dauses (1973, p. 65) criticises this formulation as being "plus ou moins arbitraire", but in defense of the analysis it may be noted that a certain number of arbitrary decisions are always required in attempting to specify the consonant cluster inventory of a language. A more fundamental problem is that Pulgram underestimates the amount of schwa loss which actually occurs in group-initial syllables. The discussion in section 4.2 above shows that schwa loss *may* occur between any pair of consonants. Thus, although it may be argued that such loss is marginal because it is rare in formal styles, it must be admitted that any two-member group-initial cluster is at least marginally acceptable.

The upshot of this analysis is that any consonant sequence produced through schwa loss after two consonants in group-medial word-initial position and in clitics is marginally if not fully dissolvable: the consonant of the clitic or the first consonant of the word can always form a syllabic onset with the consonant or cluster which followed the schwa. Examples: [l-sl] in *Marcel s*ø *lave*, [r-lv] in *Robert l*ø *veut*, [s-db] in *le fils d*ø *Berthe*, [l-npr] in *Paul n*ø *prend pas*, [t-fn] in *sept f*ø*nêtres*, [l-rpl] in *Il r*ø*plie*.[46]

The only case, then, in which the loss of a single schwa could result in an undissolvable sequence is when the schwa falls in a word-initial syllable following a consonant cluster, and the preceding word

ends in a consonant (e.g. *sept greniers*). The sequence [tgrnj] is undissolvable because loss in group-initial position after consonants is not found, hence [grnj] and the like are not permissible syllabic onsets.

Thus, the theory of dissolvability, in the form developed by Pulgram and Klausenburger, does not help very much in describing the behaviour of a single schwa following two consonants in group-medial position. It might be possible to modify the dissolvability criterion to read: schwa loss in group-medial position is more common where the resultant consonant sequence is fully dissolvable (e.g. [dskr] in *pas dø scrupules*) than where it is only marginally dissolvable (e.g. perhaps [kdlj] in *bec-dø-lièvre*). This would change the nature of the dissolvability criterion from an absolute limit which is never transgressed to another of the many factors which contribute to the actual observed rate of schwa loss. The testing of such a theory would require an immense amount of data which is not at present available.

4.6.4.2 - The relevance of consonantal aperture -

Delattre (1966, pp. 19-24) discusses loss in group-medial position after a consonant cluster in terms of the aperture relationships of the two consonants which precede the schwa.[47] He states that retention is

highly regular when the second consonant is considerably more open than the first (as in *simplement*, *notre bête*), less regular when the apertures of the two consonants are approximately the same (*exactement*, *un acte juste*), and least regular when the first consonant is much more open than the second (*fortement*, ...*porte mieux*). When the schwa is in a clitic, maximum retention is found in *le* preceded by a consonant other than [r] (e.g. *avec le mien*), while minimum retention occurs where the consonant preceding the clitic is an [r] (e.g. *un port de mer*). Delattre (1966, p. 24) summarizes the behaviour of schwa in clitics as follows:

> ...*le*, *me*, *ne*, *de*, *te*, *que* maintiennent l'ə régulièrement après toute consonne sauf *r*; *je*, *ce*, *se* le maintiennent un peu moins régulièrement dans les mêmes conditions; après *r*, tous les monosyllabes montrent une légère tendance à perdre l'ə....

As regards word-initial position, Delattre states that the schwa is always kept when it falls in the first syllable of a word which begins with a consonant cluster (e.g. *en prenant*, *un squelette*). Schwa following a word-final consonant plus word-initial consonant may fall (*leur semaine*): the aperture relationships are not discussed by Delattre for this position.

Malécot (1955) claims to have confirmed Delattre's aperture theory, using a set of paired comparison tests. His paper does not present the complete results of his study, but those which are given show only that word-medial schwa loss after the cluster types [LO] (e.g.

fortement) and [OO] (e.g. *fixement*) is more common than after the type [OL] (e.g. *amplement*). The sweeping conclusions in favour of Delattre's theory which Malécot makes on pp. 54-5 are definitely not justified by his results.[48]

The other available evidence does not, in general, support Delattre's theory. Table 6 shows schwa behaviour by cluster type in the songs of Béranger (1834): although the numbers are small, loss after [LO] does not seem to be favoured over loss after [OL] (these are the only two phonotactic types present in the songs). Koschwitz' informants (Table 7) favour loss after [OL] and retention after all the other cluster types, which is the opposite of what Delattre's theory predicts.

Dauses' study does not provide very much information on this question. He did not examine the behaviour of schwa after consonant groups of the form [OL] because he believes that all such schwas are retained (Dauses 1973, p. 58). This unfortunate omission means that schwa loss in this position remains to be studied in contemporary French. However, Dauses (1973, p. 59) shows some isolated results which suggest that there are no significant differences in schwa behaviour due to the differences in aperture among the consonant groups stop + fricative, liquid + liquid, fricative + stop, and liquid + stop. (By Delattre's theory loss should be least common in the stop + fricative type and most common in the liquid + stop type.)

Table 6

Schwa behaviour by preceding cluster type, in group-medial position after a consonant cluster: Data from Béranger

	Type o cluster which precedes the schwa		
	[LO]	[OL]	Total
Schwa lost	4(67%)	12(75%)	16
Schwa retained	2(33%)	4(25%)	6
Total	6(100%)	16(100%)	22

Table 7

Schwa behaviour by preceding cluster type, in group-medial position after a consonant cluster: Data from Koschwitz

	Type of cluster which precedes the schwa				
	[LO]	[OL]	[rl]	[sO]	Total
Schwa lost	9(25%)	42(55%)	1(17%)	0	52
Schwa retained	27(75%)	35(45%)	6(83%)	9(100%)	77
Total	36(100%)	77(100%)	7(100%)	9(100%)	129

It does not appear, then, that Delattre's aperture theory has any general value in accounting for the complex behaviour of schwa in group-medial position after two consonants. Léon (1971, p. 71) considers that it is useful within words but not over word-boundaries. At least it may be said that the aperture principle can help to account for the highly regular retention of schwa observed after [OL] within words. But a more general relevance of aperture appears from the patterns of reduction observed among [CCC] sequences when schwa is lost after the second consonant. The actual loss is not, in most cases, retarded significantly under the influence of aperture, but sequence reduction is universal only where the schwa followed groups of the type [OL]. See the next section for a full account of the facts, and section 4.11.3 for discussion of the theoretical implications.

4.6.5 - The reduction of complex group-medial sequences formed by loss of schwa -

It was shown in section 4.4 above that consonant clusters which are brought into group-final position through schwa loss are often reduced. A similar reduction is frequent when schwa is lost after a consonant cluster in group-medial position.

At least partial reduction is apparently universal when a word-final schwa is lost after [OL] before a word beginning with a consonant (e.g. in *d'êtr∉ divers*, *tabl∉ rase*). In such cases one of two solutions is possible:

(a) The liquid is retained but devoiced - see Grammont (1894, p. 76; 1930, pp. 114-5), Nyrop (1914, §313, p. 306), Fouché (1959, p. 96), and Bally (1965, §448, p. 274).

(b) The liquid is completely lost - see Grammont (1894, p. 76; 1930, pp. 114-5), Martinon (1913, pp. 160-1), Nyrop (1914, §313, pp. 306-7), Leray (1939, p. 173), Rochet (1975, pp. 124-5), and Malécot (1976, pp. 103-4).

Complete omission of the liquid is considered to be inappropriate in very careful speech, although it is frequent in the informal speech of educated people and virtually universal in popular speech.[49] Martinon (1913, p. 161) comments:

> Aujourd'hui cette prononciation n'est jamais considérée comme tout à fait correcte. Elle est, il est vrai, seule usitée dans la conversation courante, mais non dans la lecture, ni simplement quand on parle à quelqu'un à qui l'on doit des égards, et devant qui on ne veut pas se négliger.

The data of Koschwitz (1893) dramatically confirm that loss of the liquid is very rare in careful speech: there are no complete losses in 44 examples of [OLə#C] in the six passages analyzed.

Pernot (1929, p. 137) notes that complete loss of the liquid is more frequent in common words or phrases (e.g. *fièvre typhoïde*, *rendre compte*) than in uncommon ones (e.g. *des ancêtres fameux*, *tendre jeunesse*). The importance of frequency is confirmed by the examples in

Béranger (1834) and Mende (1880). Béranger shows complete loss of the liquid in 10 cases (out of 16 forms in [OLə#C]): five of these ten are in *notre* and three others are in *votre*. Mende quotes six examples of completely lost liquids: three are in *notre*, two in *autre*, and one in *votre*.

Within words, the schwa in [OLəC] (e.g. *vendredi*, *en prenant*) is supposedly always retained, and the liquid is retained along with it - see Lesaint (1890, p. 46), Martinon (1913, p. 167), Leray (1939, p. 174), Fouché (1959, p. 97), and Rochet (1975, pp. 124-5).[50] However, it is clear that there is no dissolvability restraint against schwa loss in this position (that is, the resulting consonant sequence would be dissolvable), providing that the liquid drops or at least becomes voiceless whenever the schwa is lost, as occurs when schwa is dropped in word-final position after [OL]. Up to the present such loss has been so rare as to be almost unnoticed, but loss of the schwa is claimed to have occurred in a few cases: *dérèglement*, *pauvreté*, *entrevoit*, *contreforts* (Mende 1880); *contreforts* (twice), *autrefois* (Koschwitz 1893); and *saffement* (Locke 1949, §46, p. 53). All these examples have a morpheme boundary after the schwa: if they did in fact show schwa loss as claimed they may represent the beginning of an extension of loss after [OLə] from word-final to word-medial position.

Loss of schwa after the cluster [rl] and the cluster types [LO] and [OO] may involve the weakening or loss of a consonant, especially in common words and phrases. Nyrop (1914, §320, p. 315) states that words in [-smə] before a word beginning with a consonant are pronounced

with voiceless [m] in standard French and frequently no [m] at all in popular speech (examples *catéchist∉*, *cataplast∉*, etc.). A similar loss occurs in [-st∉] (Nyrop 1914, §382, p. 364): examples include *artist∉*, *socialist∉*, *anarchist∉*. Sometimes the first consonant of the three-consonant sequence weakens. According to Pernot (1929, p. 135), the first [r] is generally weakened in words like *mercerie* when the schwa is lost, and loss of the [l] in *il n∉ sait pas* etc. is very common in the familiar speech of all Frenchmen. Other examples given by Pernot include *parce que* [paskə], [51] *quelque chose* [kɛkšoz], and *quelques-uns* [kɛgzœ̃]. Herzog (1913, §205, p. 203) states that weakening or loss of the [r] is universal if the schwa is lost in such phrases as *pour s∉ mettre...*, *sur l∉ champ*, and *parc∉ que*. Gendron's informant shows eight examples of lost word-final schwa after [rO]. The cluster remains intact in only two of these cases: in the others either the [r] is weakened or the stop is lost.

It is clear, then, that weakening or loss of either the first or second consonant of a three-member sequence formed through loss of schwa in group-medial position is very common. This is to be expected given that two-member group-final clusters formed through schwa loss are frequently reduced (see section 4.4): again the behaviour of group-final and syllable-final clusters is found to be similar. See section 4.11.3 below for the significance of the fact that reduction is more frequent after the type [OL] than after other consonant groups.

4.6.6 - The addition of schwa to break three-member consonant sequences -

A schwa is sometimes added after the second consonant of a potential three-consonant sequence when a word ending in [CC] immediately precedes another beginning with a consonant. Gaston Paris (quoted in Nyrop 1923, §92, p. 73) considers that such additions (example *Ernest Blanc* [ɛrnɛstəblɑ̃]) represent bad pronunciation, but admits that they occur in the speech of educated men. Pernot (1929, p. 81), by contrast, feels that such additions represent a natural means of conforming to the pattern that a schwa usually appears after two consonants when another consonant follows. He gives the examples *un ours blanc* [ɛ̃nursəblɑ̃], *le strict nécessaire* [ləstriktənɛs...], and *l'Arc de Triomphe* [larkədtri...], and states that pronunciations of these phrases without schwa are "rare and affected". Gougenheim (1935, p. 39) takes a more moderate position:

> La langue populaire a tendance à faire de l'*e* instable une voyelle d'insertion, venant se placer à l'intérieur des groupes de 3 ou de 4 consonnes. Tandis que la langue cultivée s'efforce de distinguer soigneusement *un ours blanc*, *un rapt scandaleux*, sans *e* sourd, en face de *un(e) ourse blanche*, *de la naphte spéciale*, avec un *e* instable très légèrement prononcé, la langue populaire a tendance à dire, avec *e* instable prononcé, *un ourse blanc*, *un rapte scandaleux*; il est fréquent d'entendre arkoebutɑ̃ pour *arc-boutant*.

Martinet (1945, p. 46) included a question on schwa insertion in his questionnaire of 1941. 27% of the subjects from northern France said that they add a schwa in *arc-boutant*, and 51% made the addition in *ours-blanc*.[52]

Dauses (1973) included *ours blanc* in his Q1, and to provide a

similar phonetic environment where the schwa was etymological, he placed *bourse pleine* in Q3. For *ours blanc*, 41.4% of students and 47.1% of adults said that they pronounce the phrase without schwa: that is, 58.6% of students and 52.9% of adults insert a schwa. In *bourse pleine*, by contrast, 64.4% of the informants said that they lost the schwa. Thus, according to these tests, more people pronounce the schwa in the non-etymological position than in the phonetically equivalent etymological one.[53]

A non-etymological schwa, then, is frequently inserted after the second consonant of a three or four-consonant sequence.[54] This is another reflection of the fact that many such sequences are not fully integrated in modern French (compare the discussion at the end of section 4.6.5 immediately above).

4.7 - Sequences of schwa in group-medial position -

The behaviour of group-medial sequences of two schwas during Period 2 depended on two major factors: both schwas tended to be lost when the consonant separating them was a fricative, and the first schwa was never retained if it fell in word-final position (see section 3.8). One other feature is worthy of note: there is only one Period 2 example where all the schwas in a sequence are retained.

The patterns shown by two-schwa sequences during Period 3 are considerably more complex. This is due partly to the greater amount of data available, and partly to normative influences and the analogical formation of certain fixed groups ("groupes figés" in French).

Different authors provide different general rules: Genlis (1901, p. 75) and Fouché (1958, p. 525) state that the first schwa tends to be lost after one consonant and retained after two, with alternate retention and loss thereafter. Mende (1880, p. 43) and Pernot (1929, p. 119), by contrast, write that the first schwa in a series is often retained irrespective of the number of consonants which precede it.

Most authors agree that sequences of schwa show great variation in loss patterns. Sometimes speakers choose to retain a given schwa of a sequence to emphasize the word in which it appears. According to Mende (1880, p. 47), *de ce* is pronounced with the schwa of *de* omitted when one wants to stress the demonstrative aspect represented by *ce*; the pronunciation is *de cé* when the idea of possession (*of*) or origin (*from*) is to be emphasized. Rousselot (1891, p. 309) reports an instance from the Cellefrouin patois: in *va le lever*, the schwa of *le* is retained if the speaker desires to emphasize the identity of the person represented by this pronoun, while that of *lever* is retained if the action of lifting is to be stressed (Rousselot says that this phrase is never pronounced with both schwas retained). And finally, Genlis (1901, p. 83) comments that *que je* is pronounced *qué je* to emphasize the idea of *me*, but *que jé* to emphasize the antecedent of the relative pronoun *que*.

The principal patterns of schwa loss and retention are discussed below in two sections, according to whether the first schwa is preceded by one consonant or by more than one.

4.7.1 - The first schwa follows a single consonant -

4.7.1.1 - Sequences of two schwas -

In Period 3, a speaker may choose to retain both schwas in a series, even when they are separated by only one consonant. In the analyzed passages from Koschwitz (1893), there are 19 cases where successive schwas are retained (see Table 8); e.g. *aussi ne seraient...*, *les choses restantes de la vie, en retenant...*, and *...vaut mieux que le savoir.* Mende (1880) quotes a few instances from plays, where the phrase in question is spoken slowly (e.g. *des nouvelles de mon voleur* [denuvɛlədəmɔ̃vɔlœr], p. 82). In the study of Martinet (1945), 19.5% of the speakers from Northern France declared that they normally retain both schwas in *on se retourne* (p. 58), while 12% usually retain both in *la peine de mort* (p. 61). The corpus of Malécot (1976, p. 102) shows 44 instances of double retention out of 341 two-schwa sequences of clitics. Dell (1973, p. 246) provides some examples of such retentions (including *envie de te battre* [ɑ̃vidətəbatr]), and discusses them as follows:

> Cette dernière prononciation [avec chaque schwa prononcé] est moins naturelle [qu'une prononciation avec au moins un schwa muet] et donne l'impression d'un léger ralentissement du débit. Lorsque plusieurs syllabes successives contiennent des schwas susceptibles d'être effacés..., un locuteur parlant avec un débit normal tend à en faire tomber le nombre maximum permis.... Mais il s'agit là d'une tendance plutôt que d'une nécessité absolue.

There are no such examples in Béranger's poetry, which aims to represent the everyday speech of the people (see Table 9); or in the Canadian French texts studied in Gendron (1966). The fact that

Table 8

The examples of [CəCəC] sequences from Koschwitz

Word-Types	Loss Patterns [C≠C≠C]	[C≠CəC]	[CəC≠C]	[CəCəC]	Total
Word-final + clitic	2(3%)	62(94%)	0	2(3%)	66(100%)
Word-final + word-initial	0	10(100%)	0	0	10(100%)
Clitic + word-initial	1(8%)	0	2(17%)	9(75%)	12(100%)
Clitic + clitic	0	4(31%)	3(23%)	6(46%)	13(100%)
Word-initial + word-medial	0	0	3(60%)	2(40%)	5(100%)
Total	3(3%)	76(72%)	8(8%)	19(18%)	106(101%)

Table 9

The examples of [CəCəC] sequences from Béranger

Word-types	Loss Patterns [C≠C≠C]	[C≠CəC]	Total
Word-final + clitic	1 (33%)	2 (67%)	3 (100%)
Word-final + word-initial	1 (33%)	2 (67%)	3 (100%)
Clitic + word-initial	0	1 (100%)	1 (100%)
Clitic + clitic	0	1 (100%)	1 (100%)
Total	2 (25%)	6 (75%)	8 (100%)

retention of all the schwas in a sequence is found only in slow and relatively formal discourse is likely the reason why no examples of this type were found for Period 2 (see section 3.8): the orthoepists of that period were describing careful informal speech spoken at a normal rate.

At the opposite extreme, both schwas of a two-schwa sequence may be lost under certain circumstances. A number of authors suggest that such double loss is favoured when the middle consonant of the resulting three-member sequence is a fricative, especially [s] (Grammont 1894, p. 81; Martinon 1913, pp. 176-7; Pernot 1929, pp. 121-2; Leray 1939, p. 183; see also Léon 1971, p. 71). Examples quoted by these authors include: *tu sais qué jé l'ai vu*, *vous voyez d'ici lé chémin*, *que penses-tu dé céla*, *...ne veut pas encoré vénir*, *tu demandés cé qu'on dit*, *si jé férai....* The existence of this phonotactic conditioning factor would be reasonable in that a similar factor operated during Period 2. However, the observed examples of [CəCəC] do not support the hypothesis: there are 12 instances where the middle consonant is a fricative and 10 where it is not a fricative (in Béranger's poetry; Mende 1880; the passages analyzed from Koschwitz 1893; and Malécot 1976, p. 102). Because the number of examples is small, these data do not indicate that the hypothesis is incorrect.

There appears to be another phonotactic conditioning factor operating here. Where the second consonant of a potential three-consonant cluster is an obstruent and the third is [r], both schwas are frequently lost: Martinon (1913, p. 173) gives the examples *pellétérie*, *panétérie*, *grenétérie*, and *louvétérie*. Only 8 of the 22

relevant examples in the texts mentioned above show this structure. And finally, Pernot (1929, pp. 121-2) writes that both schwas are easily lost in a sequence of words ending in schwa + *petit(e)*. There is one such example in the texts studied.

Dauses (1973, *passim*) included 6 examples of two-schwa sequences in his Q1, and 9 in his Q3. Double loss was relatively common in *une pelouse* and *cette pelouse*, and also in *une petite*. These results suggest that schwa may be easily lost in the latter two environments discussed above ([pl] is a primary cluster in the same class as Martinon's [tr] etc.). Dauses' figures do not support the theory that both schwas are easily lost if the middle consonant is a fricative, but neither do they constitute evidence against it.[55] More research is required on this matter.

It appears that double loss is more common in informal than formal styles, as one might expect. Table 9 reveals that 25% of the occurrences of [CəCəC] in Béranger's poetry show loss of both schwas, as contrasted with only 3% for the passages from Koschwitz (Table 8). Because of the small numbers of examples available, however, this conclusion remains tentative. The speed of speech is also relevant: Morin (1974, §2.1.4, p. 75) states that double loss in sentences like *La bibliothèque se trouve là-bas* is normally restricted to very rapid speech.

As in the case of consonant sequences produced by the loss of a single schwa after two consonants (section 4.6.4.1 above), all sequences produced by the loss of both schwas from a [VCəCəCV] sequence are at least marginally dissolvable. This is because any pair of

consonants can form a syllabic onset (loss is found between any two consonants in group-initial position): examples of acceptable sequences from the above examples include [k-ž] in *tu sais que je l'ai vu*, [l-tr] in *pelleterie*, and [n-pt] in *une petite*.

Most frequently, one schwa of a sequence of two is lost and the other is retained. Where the first schwa is in word-final position and the second in either a clitic or word-initial position, loss of the first schwa and retention of the second is so general that some authors treat this case as if the first schwa were not present (see Delattre 1966, pp. 17-24; Dauses 1973, *passim*). Tables 8 and 9, which show the data from Koschwitz (1893) and Béranger (1834), confirm that word-final schwa is not commonly retained. Martinet (1945, pp. 61-2) found that 86% of his northern French subjects approved [lapɛndəmɔr] for *la peine de mort*, as against only 2% who approved [lapɛnədmɔr]. Martinon (1913, p. 168) states that a word-final schwa is "never" retained before a word with a schwa in the first syllable.

If the first schwa falls in a clitic and the second in either a clitic or word-initial position, the loss patterns are more flexible. Delattre (1966, pp. 24-5) summarizes the situation by noting that the first schwa may be lost or retained, with alternate retention and loss after this point (such that no more than two consonants fall together). Mende (1880, p. 93) notes that, when the second schwa is in word-initial position, loss of the schwa of the word is much more common than loss of that of the clitic. According to Martinon (1913, p. 177), the former pronunciation (e.g. *on le devine* [õlədvin]) is the more elegant, but the tendency to drop the first schwa frequently comes into

play. This is confirmed by Martinet (1945, pp. 58-61): among those northern French speakers who stated that they lost one of the schwas in *on se retourne*, 76% supported the pronunciation [ɔ̃srəturn] as against only 24% who supported [ɔ̃sərturn].

As regards sequences of clitics, Martinon (1913, p. 178) states that the schwa of the first clitic is generally lost and that of the second kept, as in *si jə te prends*. The examples in Mende (1880, *passim*) and the data in Malécot (1976, p. 102) indicate that both [CəCəC] and [CəCəC] are common for this word type. See also Tables 8 and 9, which together show 5 examples of [CəCəC] and 3 examples of [CəCəC]. The results of Malécot (1976, pp. 101-2) suggest that the probability of these two loss patterns depends to some extent on the nature of the consonant preceding the first schwa. When the latter follows a voiced consonant, the loss pattern is [CəCəC] in 37 cases and [CəCəC] in 31; after a voiceless consonant the figures are 36 cases of [CəCəC] and 58 of [CəCəC]. Thus, it appears that the first schwa is retained more frequently after a voiceless consonant (e.g. in *que je*) than after one which is voiced (as in *de le*). This result requires confirmation, however, as Malécot's results are near the limit of statistical significance.[56]

The behaviour of group-medial sequences of clitics depends to some extent on the existence of the so-called "fixed groups" of clitics. These are sequences of two clitics whose pronunciation has been more-or-less fixed, apparently because they are most commonly found in one position in the group. The pronunciation which is generally found

there (loss of the first schwa after one consonant, retention after two consonants and in group-initial syllables) is then extended to other positions by analogy. According to Grammont (1930, pp. 109-11), the strongest fixed group is *je nǝ*, so pronounced because it usually appears at the beginning of a group. In its rare group-medial appearances (e.g. *Si je ne...*), this pronunciation is usually retained. *Je mǝ* and *je lǝ* have the same origin, but they are much less strong than *je nǝ* (*Si jǝ le...* etc. is common). The other fixed groups, says Grammont, originated in group-medial position, where the commonest context is after a consonant; thus the first schwa is retained. These groups are *que jǝ*, *que lǝ*, *de nǝ*, *de lǝ*, and *te lǝ*. Grammont states that only the first rarely admits loss of the first schwa; in the other groups the latter pronunciation is quite common in group-medial position after a vowel.[57] Another strongly fixed group is *cǝ que* (see Leray 1939, p. 175; Martinon 1913, p. 178). Malécot (1978, p. 102) has confirmed the strength of *je nǝ* and *cǝ que*: in his corpus, 53/55 and 70/73 instances respectively show these pronunciations.

Finally, both schwas of a two-schwa sequence may be in the same word. According to Mende (1880, p. 148) and Martinon (1913, p. 172), the second schwa is retained when preceded by two consonants: in this case the first schwa is usually lost (example *palǝfrenier*). Otherwise, the pronunciation varies greatly. The phrase *si vous revenez*, for example, may be pronounced [sivurvǝne] or [sivurǝvne]. Martinon (1913, p. 175) characterizes the first form as more popular and the second as more correct. Some words show a more-or-less fixed form: *chevǝlu* and

chevelure generally retain the first schwa, as does *échevelé* (Martinon 1913, p. 175).

4.7.1.2 - Multi-schwa sequences -

All schwas of a multi-schwa sequence may be retained, especially in slow, oratorical speech. Examples include: *sur ce que je le crois* [syrsəkəžələkrwa] (Mende 1880, p. 60), and *Jacques redevenait* [žakrədəvəne] (Dell 1973, p. 246). This pattern, then, is similar to the one in which both schwas of a two-member sequence are retained.

However, the loss of all the schwas in a sequence of three or more is not observed. This is reflected in a general rule expressed by Delattre (1966, pp. 24-5): the behaviour of the sequence is determined by that of the first schwa. If this is lost, the second (and fourth, if present) are retained and the third is lost. If the first schwa is retained, the second (and fourth) are lost and the third is retained. This rule excludes the possibility of either retaining or losing two successive schwas, although both these patterns are observed. It does make it absolutely clear, however, that the loss of three successive schwas is not found.

Because this latter requirement is the only phonotactic constraint on the behaviour of the schwas in multiple sequences, a wide variety of loss patterns is observed. The following examples of three-schwa sequences are from Mende (1880, passim):

(a) 1st and 3rd lost - *je vous dis dø me røgarder*

(b) 2nd lost - *qui ne sø le disent pas*

(c) 3rd lost - *si je ne røtrouve*

(d) 2nd and 3rd lost - *cet hymen ne sø førait pas*

(e) 1st and 2nd lost - *de tout cø quø je fais*

Compare also the pair given by Delattre (1966, p. 25): *on me lə refuse* or *on mə le rəfuse*. Longer sequences show the same types of patterns. Examples: *mais cə que jə te défends*, *une quittancə de cə que jə ne reçois pas* (both from Mende 1880).

The dissolvability criterion of schwa loss (see section 4.6.4.1 above) is of interest in this case, since almost all sequences which could be formed through the loss of three consecutive schwas would be undissolvable. Of the six examples of three-schwa sequences given above, only *de tout ce que je fais* would yield a dissolvable four-member sequence ([sk-žf], with group-final [sk] as in *Basquə*). Of the various possibilities in the longer examples, [sk-žt] and [sk-žn] are dissolvable, but [kžtd], [sdsk], [dskž], and [kžnr] are not. Clearly, then, the concept of dissolvability is useful in accounting for the fact that two successive schwas may be lost (section 4.7.1.1) but that three or more may not.

4.7.2 - The first schwa follows a consonant cluster -

When the first schwa of a sequence of two, following a consonant cluster, falls within a word or a compound, it is virtually always retained (Martinon 1913, p. 172; Dell 1973, p. 232). Where only one consonant separates the schwas, the second one is frequently lost. The three examples from Mende (1880) show this pattern: they are *entretənir*, *entretənu*, and *contrevənir*. Sometimes, however, both schwas are retained in words of this type (Martinon 1913, p. 172). The first schwa is normally retained also when it falls in a clitic, as in *Il se répose* (Nyrop 1914, §294, pp. 289-90). Again, the

second schwa is generally lost.[58]

When the first schwa is in word-final position, however, the loss patterns are influenced by the general tendency exhibited by careful speakers to omit all word-final schwas. Thus, even when the first schwa is not lost completely, it is considerably weakened (Genlis 1901, pp. 73 and 98; Martinon 1913, pp. 176-7; Herzog 1913, §209, p. 205). Examples of complete loss from Koschwitz' subjects are *peut-êtr∅ de sa...*, *grand commerc∅ de casquettes*, and *contr∅ ce tyran*. In this case, of course, the second schwa is always retained since it is preceded by three consonants. The second schwa tends to be retained also when the first is retained in a weakened form. Examples from Mende (1880) include *ces sort∅s de choses*, *mettre le verrou*, and *un acte de foi*.

The examples of [CCə#Cə#C] which are given by Mende (1880) all show retention of the first schwa. These examples are analyzed in Table 10, which suggests that the tendency to retain the second schwa exists mainly when this falls in a clitic, rather than when it is in word-initial position.[59]

More variety is shown in the passages analyzed from Koschwitz (1893) - see Table 11. The speakers here do not often retain the first schwa, and hence the pattern with both schwas pronounced is much less common than that with the first lost and the second pronounced. The tendency to pronounce the second schwa regardless of what happens to the first is very strong here.

Table 10

The behaviour of the second schwa in [CCəCəC] sequences: Examples from Mende

(The first schwa, in word-final position, is always retained)

Second schwa in	Lost	Retained	Total
Clitic	19(25%)	58(75%)	77(100%)
Word-initial	18(56%)	14(44%)	32(100%)
Total	37(34%)	72(66%)	109(100%)

Table 11

The examples of [CCəCəC] (first schwa in word-final position) among Koschwitz' informants

Second schwa in	Both schwas retained	First lost, Second retained	First retained, Second lost	Total
Clitic	3(13%)	19(79%)	2(8%)	24(100%)
Word-initial	1(33%)	2(67%)	0	3(100%)
Total	4(15%)	21(78%)	2(7%)	27(100%)

Béranger's poetry contrasts with both Mende and Koschwitz. There are only four examples of [CCə#Cə(#)C], but in every case the second schwa is lost: the first is retained three times (e.g. *porte dø la...*) and lost once (in *peut-êtrø føraient...*). These results are significant because they indicate that the frequent weakening of the first schwa is characteristic only of careful educated speech. Lesser-educated Frenchmen tend to retain the first schwa even though this falls in word-final position, and hence the second is normally lost.

4.8 - Schwa between identical consonants in group-medial position -

It was shown in section 3.9 above that schwa was freely lost between identical consonants in Period 2. Resistance to loss in this position appeared in the writings of some 19th century grammarians. Typical statements requiring the pronunciation of such schwas are those by Malvin-Cazal (1846, p. 42), Mende (1880, p. 134), Koschwitz (1889, p. 32), and Lesaint (1890, p. 44). Examples of retained schwa quoted by these authors include *extrêmement*, *chante-t-il*, *il veut te tromper*, and *servile loi*. Yet two of these authors also quote examples of loss between identical consonants. Lesaint (1890, p. 36) accepts *pierrøries*; Mende (1880, *passim*) gives eleven examples, including *je mø mette ici* and *Ils ne trompøt pas*. This suggests that the "rule" that schwa should be kept between identical consonants was not followed very regularly.

Other authors state that schwa may be freely lost in this position: see Nyrop (1923, §132, p. 105), Martinon (1913, pp. 159, 165, and 176), Pernot (1929, p. 68), Leray (1939, pp. 179-80), and

Fouché (1959, pp. 96 and 99-100). Examples of loss include *elle lit*, *la-dedans*, *extrêmement*, and *si je joue*.[60] These writers are all concerned with careful educated French, and therefore their statements indicate that there has never been a strong tendency toward retention of schwa between identical consonants.

This view is confirmed by the available data. Table 12 gives the number of losses and retentions in the passages from Koschwitz (1893). Even in these examples of careful speech, loss is considerably more common than retention.[61] In Béranger's poetry and the Canadian French of Gendron's informant, loss is universal (there are a total of seven examples).

Table 12

Behaviour of schwa between identical consonants in the passages from Koschwitz

Position of schwa	Lost	Retained	Total
Word-final	17(89%)	2(11%)	19(100%)
Word-medial	1(100%)	0	1(100%)
Clitic	2(18%)	9(82%)	11(100%)
Total	20(65%)	11(35%)	31(100%)

Schwa may even be lost after a consonant cluster, where the second consonant of the cluster is the same as the consonant following the schwa. There are four such examples: *l'ordɫɫ du jour* (Bĕranger 1834); *parlɫ-lui de...* (Mende 1880, p. 124); and *fortɫ tête* and *cordɫ de bois* (Genlis 1901).

It is clear, then, that schwas appearing between identical consonants have never shown a degree of retention which was significantly greater than that shown by other group-medial schwas at the same period.

4.9 - Schwa and aspirate *h* -

In careful educated French, there is a group of words (beginning with *h* in the spelling) which block the loss of an immediately preceding schwa. The result is a vowel hiatus between schwa in word-final position or a clitic, and the initial vowel of the word beginning with "aspirate" *h*[62] (Genlis 1901, pp. 88 and 95; Martinon 1913, p. 248; Herzog 1913, §208, pp. 204-5; and Grammont 1930, p. 116). Examples: *une hache* [ynəaš], *fausse honte* [fosəɔ̃t], *je te hais* [žətəɛ], *le héros* [ləero].

From a phonotactic point of view, pronunciations such as these are bizarre. Schwa is maintained before a vowel - an environment in which most schwas had disappeared by 1500.[63] It is not surprising, then, that retention of these schwas is confined to educated speech. Regularization through schwa loss in popular speech is noted by Grammont (1894, pp. 86-88), Pernot (1929, p. 115), Leray (1939, p. 181), and

Spence (1976, §3.6, p. 44). Martinon (1913, p. 249) comments as follows:

> ...les erreurs nombreuses que fait le peuple en cette matière montrent bien la répugnance instinctive qu'il a pour l'*h* aspiré: si la langue était livrée à elle-même, l'*h* aspiré deviendrait promptement identique à l'*h* muet.

And Landry (1943, p. 37) states that, in the Canadian French dialect he studied, *h* is generally "entirely ignored", resulting in pronunciations like *l'héron* and *coup d'hasard*. Another means of eliminating the vowel hiatus is to pronounce the *h* as [h]: this is sometimes done in Canadian French, writes Landry, in a few phrases like *le haut*. Martinon (1913, p. 248) characterizes the pronunciation [h] in such phrases as *Je le hais* [zələhɛ] and *C'est une honte* [setynəhɔ̃t] as emphatic.

The retention of schwa before aspirate *h*, then, is an excellent example of the influence of normative orthoepy as taught in school. And the loss of such schwas in popular speech is a reflection of the fact that normative pressures of this type are often not felt in popular dialects.

4.10 - [OLG] groups in non-standard dialects -

The tendency of Period 2 Canadian French speakers to avoid all consonant groups with the structure [OLG] was discussed in section 3.10 above. This tendency is observed today in a number of non-standard French dialects.

Juneau (1972, pp. 215-6) lists the following examples in which schwa insertion occurs after the first consonant of such groups (from the *Atlas linguistique de France*):

1. In word-medial position: *février* (especially in the north-west and centre, also in Poitou and the north-east), *tablier* (in Normandy and the centre, and at one point in Brittany).

2. In word-initial position: *brouette* (in most of Northern France), *croix* (at some points in Normandy and Britanny), *clouer* (in Normandy and Poitou, and at one point in Touraine).

Pignon (1960a, pp. 494-6) confirms the existence of this tendency in Poitou: he gives the examples *février* [fevœrje], *brouée* [bœrwɛj], and "couvée" [gœrwɛj]. Dottin and Langouet (1901, p. XLIX) make a general statement that, in the speech of Pléchâtel and elsewhere in Eastern Britanny, an [æ] (or [ə]) is inserted between a stop and [r] when a semivowel follows. Their examples are: [gœrwɛ̃] for *groin*, [gœrɥɛ] for *gruau*, [tœrjɔ̃] for *trayon*, [bœrwet] for *brouette*, [kœrwœzœ] for *croisée*, [kerwe] for *croix* (with exceptional [e] instead of [æ]), [pœrjœ] for *prier*, [fœvœrje] for *février*, and [ekœrwel] for *écrouelles*.

Forms with the inserted vowel remain common also in Canadian French. Juneau (1972, p. 215) refers to examples in the *Glossaire du parler français au Canada* (see Société du parler français au Canada 1968). These include *tabelier/tabilier* for *tablier* (p. 650), and *quelouer* for *clouer* (pp. 548-9). La Follette (1960, p. 31) shows insertion in *ouvrier* and *voudriez-vous*; while McArthur (1968, p. 53) shows it in *bluet*, *tablier*, *sucrier*, and *vendriez* and other conditionals in *ions*, *iez*.

This insertion tendency shows that no [OLG] sequences are fully integrated in most non-standard French dialects. See section 4.11 for

a discussion of the phonotactic importance of this point.

4.11 - Conclusion -

4.11.1 - Discussion of the factors which govern schwa loss during Period 3 -

The preceding sections have shown that schwa behaviour during Period 3 is influenced by a large number of different factors, many of which act independently of each other. The aim of this section is to provide, for each factor, a summary of the phonotactic environments in which it is operative. In addition, mention is made of the theoretical questions which arise from the patterns observed.

The number of consonants which precede the schwa is important in group-initial and group-medial positions (loss is commoner after one than after two consonants, in fact after a cluster at the beginning of a group it is virtually unknown), but has little effect in group-final position. The precise consonants which surround the schwa have some effect in group-initial position (loss is less common between stops than otherwise), and considerable effect in word-medial position (loss is almost unknown after [OL] clusters and is uncommon before [Lj] groups). However, in word-final position (both within and at the end of groups), the type of surrounding consonants has little effect. The only other strictly phonetic factor is the number of syllables between the schwa and the end of the group. This is of great importance in group-medial position after a cluster and is also relevant in group and word-initial positions, at least in some dialects (schwa is lost more easily when the distance to the end of

the group is relatively long than when it is relatively short).

The position of schwa with respect to word boundaries is of great importance in group-medial position. After a single consonant, retention is much more frequent when the schwa falls in a clitic or in a word-initial syllable than when it is in word-medial or final position. After a consonant group, loss is relatively frequent in word-final position and quite infrequent within words (except in future and conditional forms where it is comparable in extent to that in word-final position). And the first schwa of a sequence is rarely retained after one consonant in word-final position, while such retention is frequent when it falls in a clitic (this factor operated also during Period 2). These items show that the speakers remain aware of word boundaries in present-day French, a fact which has important theoretical implications. See the full discussion in section 5.5.

A number of other factors apply with more or less strength to all schwas (regardless of their position). First among these are style and speed: the slower and more formal the speech, the more schwas will be pronounced. In many positions the style has a dramatic effect on schwa behaviour. For example, loss is rare in group-initial position in formal French, but quite common otherwise; and retention is virtually unheard of in word-medial position after a single consonant except in formal speech, where it is fairly frequent. As noted in section 4.1.2, the general influence of the speech situation on schwa behaviour is quite clear. However, the results of Lucci (1976) confirm that the operation of this factor is very complex,

and hence further work is required.

A second constant factor is that, when a speaker wishes to emphasize a word which contains a schwa, he usually pronounces the latter. This is particularly important to sequences of schwas: the choice of which schwa is retained is frequently made on the basis of which word the speaker wishes to emphasize. Single schwas in word-initial syllables are usually retained in emphasized words, since the *accent d'insistance* normally affects the first syllable of words which begin with a consonant. Occasionally a desire for emphasis is responsible for retention of single schwas in other positions in the word, and in clitics.

A third point concerns the need to pronounce certain forms with the greatest possible clarity. Schwas in such words are usually pronounced, since they increase the redundancy of the syntagm in their vicinity. A number of the observed patterns of schwa behaviour may be better understood in the light of this principle. Redundancy is at its minimum at the beginning of a sentence, and is also relatively low at the beginning of each new semantic unit (this is true, at least, of lexical monemes like nouns, verbs, and adjectives) - compare Lucci (1976, p. 96). It is therefore not surprising that schwa is retained relatively frequently in word-initial syllables, in both group-initial and group-medial positions. The fact that the schwas of clitics are frequently pronounced may also be related to this matter: a moneme which is reduced to a single consonant is more difficult to pick out of the chain of speech than is one which consists of a consonant followed by a vowel. Rare words form a case in which the factor of

clarity applies to a number of different phonotactic positions. Such words carry more information than do common ones, hence they must be pronounced clearly in order to ensure proper decoding. The natural tendency is therefore to pronounce a schwa which falls in such a word.[64] It is significant that frequency seems to play the greatest role in word-initial position: this is precisely the point of minimum redundancy in the word.

The final major factor concerns prescriptive pressures toward schwa retention, which in formal styles have had a pronounced influence on schwa behaviour in many positions. This influence is most marked in the case of schwa before "aspirate *h*", where it is pronounced before a vowel only because it is traditional to do so. This tradition, in turn, owes much to the desire of grammarians to maintain the difference between mute and aspirate *h* (compare Pope 1966, §196, p. 94). The extremely powerful influence which the normative grammarians have had in this matter is made clear when it is considered that virtually all schwas in hiatus were lost in informal speech by about 1500. Normative influence has also been explicitly discussed in this study with respect to schwa behaviour in the first syllable of words in group-medial position, where it has had the effect of making loss less common in certain words than it already tended to be because of other factors (principally the frequency of the word). But grammarian prescriptions have had an important effect in other positions as well. In group-initial syllables, for example, a phonotactic tendency to avoid the production of syllable-initial consonant clusters of certain types has been reinforced by grammarian

remarks to the effect that it is elegant to pronounce schwas in this position. It seems highly improbable that Koschwitz' informants would show 100% retention in this position unless normative influences were important: after all, group-initial schwas were frequently lost in the 17th century. These examples lend credence to the contention of Rosset that the prescriptive grammarians have been responsible for the persistence of schwa as a sound which may be lost or retained (see section 3.1.2).

It is clear from the above discussion that schwa behaviour today is influenced by many factors which are not internal to the spoken chain. It follows from this that descriptions of modern schwa dynamics which are based primarily on such factors may ignore some decisive influences. This matter, together with the implications it carries for the general methodology of historical linguistics, is discussed further in section 5.2.

4.11.2 - Schwa loss and syllable-structure universals -

The previous chapters of this study have pointed out a number of patterns which are relevant to the various universal theories of phonotactic organization discussed in Chapter 1. There are four such patterns among the data of the present chapter: (1) the influence, in group-medial position, of the number of consonants around the schwa, (2) the behaviour of schwa in group-initial position, (3) the fact that some at least of the [LG] clusters are not well integrated as syllabic onsets (this matter was briefly discussed in section 3.11.2.2 above), and (4) the patterns of reduction of certain consonant groups formed

through schwa loss.

4.11.2.1 - The number of consonants around the schwa -

During Period 2, loss of schwa in word-medial position was general between single consonants, but was somewhat restricted when two consonants preceded or followed the schwa (see the discussion in section 3.11.2.1). A similar pattern is evident today: loss within words is still restricted before certain [LG] clusters (see sections 4.5.5 and 4.10 for the details), and loss is much more common from [CəC] than from [CCəC]. The latter pattern may be inferred from the discussions in sections 4.5.2 and 4.6, and is dramatically confirmed by the data of Koschwitz (1893). His informants show loss of word-medial schwa in 64% (32/50) of all cases after one consonant, and in only 13% (3/23) of the cases after a cluster.[65] Thus, the number of consonants which surround the schwa has some effect on its behaviour, although this influence is rather restricted in scope.

As noted in section 3.11.2.1, this pattern may be interpreted in terms of a broad conception of the theory of the ideal syntagm: three-member consonant groups break up the ideal [CVCV...] arrangement more than do two-member groups. In addition, it should be noted that Greenberg observed that two-member initial and final clusters were more common than three-member ones (tendencies 1 and 2, see section 1.3.3.3). While these observations cannot be transferred to group-medial position, they are certainly suggestive: it is very probable that medial consonant groups show the same type of distribution. The favouring of word-medial schwa loss after a single consonant would fit

with such a pattern.

4.11.2.2 - Group-initial position -

It was shown in section 4.2 that loss of group-initial schwa depends to some extent on the consonants which surround it. The following tentative hierarchy was arrived at (examples are given in parentheses):

(1) Loss is most frequent after non-stops; that is, between: liquid + obstruent (*Le pain...*, *Le mal...*, *Refusez-le.*), fricative + liquid (*Je lave...*), fricative + fricative (*Je ferme...*), fricative + nasal (*Venez.*), fricative + stop (*Ce beurre...*), nasal + liquid (*Ne lachez rien.*), nasal + fricative (*Mesure-moi...*), nasal + nasal (*Menez-moi là.*), and nasal + stop (*Ne bougez pas.*).

(2) Loss is of intermediate frequency between a stop and a non-stop, that is: stop + liquid (*pelouse*), stop + fricative (*De son crédit*), and stop + nasal (*Que nous...*).

(3) Loss is least frequent between stops (*Que pensez-vous...*).

Certain elements of this hierarchy fit with the detailed patterns of preferred syllable structure discussed in section 1.3.3.3. Thus, the fact that loss is less frequent between two stops than in stop + fricative and fricative + stop combinations fits with tendency 7. But other features are not so easily understood. By tendency 17 ([OL] clusters are found more widely in initial position than are [LO] clusters), one would expect loss of schwa to be more frequent between a stop and a liquid than between a liquid and a stop - the reverse is observed.[66] If the more general factors of sonority and aperture

(sections 1.3.2.1 and 1.3.3.2) are considered, the same problem arises: loss should be disfavoured between a liquid and an obstruent because the former type is of greater sonority and aperture than the latter. In addition, there is no apparent reason why loss should be more frequent between two fricatives and two nasals than between two stops.

There is no reasonable phonotactic explanation for these exceptions: one would expect schwa loss patterns to follow the universal tendencies in phonotactic organization just as much in group-initial position as elsewhere. It is reasonable to suppose, therefore, that the disfavouring of loss after stops has a non-phonotactic basis. The most likely explanation is that the pattern has a normative origin: grammarians decided that schwa should be retained after stops, and in time speakers responded to their admonitions. This hypothesis is supported by the fact that, in Béranger's poetry (where one would not expect very much influence from normative rules), only 2 schwas out of 12 are retained after stops (Table 13). This gives a retention percentage of 17%, as against 12% for schwa following a non-stop (4 retentions out of 33), a difference which is not significant.[67]

Table 13

Loss of group-initial schwa in the poetry of Béranger, arranged by the preceding consonant type

Schwa follows	Lost	Retained	Total
Stop	10(83%)	2(17%)	12(100%)
Non-stop	29(88%)	4(12%)	33(100%)
Total	39(87%)	6(13%)	45(100%)

4.11.2.3 - [LG] clusters as syllabic onsets -

The discussion in section 4.10 (and also section 3.10 on Period 2) show that no syllable-initial [LG] clusters are fully integrated in non-standard French dialects. The avoidance of [OLG] sequences in such dialects can be understood as a product of the sonority and aperture relationships involved: [LG] clusters do not form syllabic onsets of the ideal type because liquids and semivowels are very similar in these two properties. The presence of certain [OLG] sequences in standard French presumably reflects a willingness on the part of its speakers to make the effort to produce non-ideal syllabic onsets. It is not surprising that the speakers of non-standard French are unwilling to make such an effort, which in their eyes is "unnecessary".

Not all [OLG] sequences are equally well integrated in standard dialects. The major difficulty concerns the use of [rj], and to a lesser extent [lj], as syllabic onsets. A possible reason for the

acceptance of syllable-initial [Lw] and [Lɥ] is provided by Delattre (1966, pp. 153-6). This involves the physical property of strength of articulation, which in most consonants is proportional to aperture. In the case of the open consonants, however, some important divergences occur: [l] is articulated much more strongly than [r] (Delattre 1966, p. 153), and [j] is articulated more strongly than [w] and [ɥ] (Delattre 1966, p. 156).[68] Since consonant clusters which form syllabic onsets tend to show a greater strength in the first consonant than in the second, [Lw] and [Lɥ] are more normal than is [Lj]. The same principle helps to account for the greater acceptability of [lj] over that of [rj]: [rj] violates the usual arrangement ([r] being weaker in articulation than [j]), while [lj] does not ([l] is considerably stronger than [j]).

Delattre (1966, p. 156) mentions another articulatory factor which makes [rj] an abnormal syllabic onset: because the standard French [r] is pronounced in a back velar or uvular position, "la langue ne peut absolument pas se mettre en position pour le *j* pendant l'articulation de l'*r*". He adds that this is the main reason for "la difficulté d'articulation" of [Orj] sequences. The problem is much less serious for syllable-initial [rw] and [rɥ] clusters, because [w] is a back semivowel and [ɥ] is not pronounced nearly as far towards the front as is [j].

It seems likely, then, that the special problem of [rj] as a syllabic onset, like the more general difficulty provided by all [LG] clusters, may be understood in articulatory and phonotactic terms.

However, further work on the concept of strength of articulation would be useful to make this explanation fully convincing.

4.11.3 - Syllable structure and the reduction of consonant groups formed through schwa loss -

In word-final position (both within and at the end of groups), loss of schwa after two consonants is quite frequent. The type of consonant group preceding the schwa has no apparent bearing on its behaviour. Thus, loss after the types [OL] (*autre*), [LO] (*porte*), and [OO] (*pacte*, *chaste*) is equally probable, in spite of the fact that [LO] clusters form a syllable coda of the "ideal" type, while [OL] clusters do not (section 1.3.2.1).

The cluster type is of major importance, however, in determining the fate of the consonants when schwa is lost (sections 4.4 and 4.6.5; and for Period 2, section 3.3.2). In Period 2, reduction of the cluster is attested only in the case of the [OL] type; today, reduction (either partial or complete) is more common among [OL] clusters than among the [LO] and [OO] types. Of these three phonotactic structures, the [OL] variety is the only one which seriously violates the sonority and aperture tendencies in syllabic organization. It is therefore clear that pressure to conform better to these tendencies is a major factor in the very frequent reduction of syllable-final [OL] clusters. In formal standard French, the liquid in such clusters is never lost completely, but is phonetically strengthened by being devoiced and fricativized. These processes reduce its sonority and aperture to the point that the cluster at the

end of *autrǝ* or *faiblǝ* closely resembles, in these properties, that at the end of *pactǝ* or *chastǝ*.

Even in cases where the sonority/aperture of the second consonant is equal to or less than that of the first, a pressure toward reduction is observed. Thus, the second consonant of all three cluster types is frequently lost in informal standard and non-standard speech. This fits with the suggestion made in section 3.11.2.2 above: two-consonant syllabic codas (which are often found when no consonant reduction occurs), do not fit very well in a language which shows open syllables where these are distributionally possible. In group-final position, there is also the universal factor that a consonant cluster breaks up the ideal [CVCV(C)] arrangement, whereas a single consonant does not.[69] For these reasons, it is not surprising that all word-final two-consonant groups formed through schwa loss in modern French tend to be reduced.

The fact that phonotactic pressures do not, in this case, inhibit the loss of schwa is of importance to the understanding of linguistic change in general. In this case, structural factors have acted to render the result of the change satisfactory. The systematic requirements are served equally well by a syntagm of the form [VCCə] or [VC], and adequately by one of the form [VCC] provided that the second [C] is not much more open and sonorous than the first. For this reason, there are no syllable structure requirements which would totally block the action of a general pressure toward the elimination of unstressed word-final vowels. They merely adjust

the effects of the latter pressure: they channel it so that the result is not dysfunctional. It appears that structural pressures frequently play passive roles of this type in language change (compare McCalla 1973).

Notes

1. In the first questionnaire (Q1), Dauses asked a group of 111 students and another of 17 adults to state whether they pronounced a given phrase or sentence with or without a given schwa. Results are quoted as the percentage of subjects in each group who said that they lost schwa (Dauses 1973, pp. 6-7).

The other questionnaire (Q3) was more complex. For each schwa in the study, subjects were asked to choose among four responses: R1 - they omit the schwa; R2 - they personally pronounce the schwa but consider its omission to be entirely acceptable in familiar language; R3 - a pronunciation without schwa is barely acceptable ("à la rigueur acceptable") in familiar language; and R4 - a pronunciation without schwa is completely unacceptable (Dauses 1973, pp. 17-18). The important figures here are those for R1 and R2 - results are given in the present study as (a) the percentage of subjects who answered with R1, and (b) the percentage who answered with R1 or R2.

2. See also the review of Dauses' book by Matte (1974).

3. See Béranger (1834): volume 1, pp. 251-3, 270-3, and 307-9; volume 2, pp. 37-40, 98-100, and 325-9.

4. Although not all of these speakers were native Parisians, they had lost virtually all elements of their provincial accents by the time of the study. The varying origins should therefore not affect the

behaviour of schwa.

5. The stories represent texts 1969-1972 of the Archives de Folklore de l'Université Laval.

6. Lucci does not explain why results are shown for only two of the three subjects (see p. 93).

7. This average may be incorrectly printed, as the figures for the two subjects are given as 10.5% and 32.1%: the unweighted average of these is 21.3%.

8. In some non-standard dialects, including Canadian French, an effective metathesis occurs such that a group-initial consonant and the schwa which followed it exchange places. Examples: *le nez* [əlne], *le gardien* [əlgardjẽ], *reculez-vous* [ərkylevu] (La Follette 1960, p. 30); *regardez* [ərgarde], *remarquer* [ərmarke], *revirer* [ərvire] (McArthur 1968, pp. 52-3). La Follette notes that this change is most common in *le* and in the prefix *re-*. He also states that the group-initial schwas thus produced may be strengthened to [a], as in *reculez-vous* [arkylevu]. In the stories analyzed in Gendron (1966), schwa occurs four times in the group-initial syllable *le*. It is pronounced in absolute initial position three times (e.g. *le bonhomme*... [əlbɔnɔm]); and is lost once, with weakening of the [l] (*le canard*... [ˈkanɑwr]). La Follette (1960, p. 31) and Martinon (1913, p. 176, note 1) state that this phenomenon is frequent in popular speech in France.

La Follette (1960, p. 30) suggests that the reason this absolute initial schwa is pronounced is that two consonants in group-initial position are ordinarily too difficult to articulate by themselves. The question then arises as to why the etymological schwa was lost in the first place. Martinon (1913, p. 176, note 1) states that the people feel a strong pressure towards loss, but find that they cannot pronounce the two consonants as a syllabic onset. The absolute initial schwa is thus substituted for the etymological one. This does not seem to be a very satisfactory explanation, since the speakers of popular dialects do not usually feel strong normative pressures of the type postulated to account for the original loss. In any case, a complex group-initial cluster is avoided through this effective metathesis.

9. The sources of Table 4 are: Béranger (1834); Mende (1880); Lesaint (1890, pp. 35-6); Koschwitz (1893 - from the passages by Daudet and Zola); Grammont (1894, pp. 81-3); Genlis (1901, *passim*); Martinon (1913, pp. 169 and 176-7); Herzog (1913, §207, p. 204); Pernot (1929, pp. 68 and 112-3); Grammont (1930, pp. 107-8); Leray (1939, pp. 178-80); Fouché (1959, pp. 120-2); Sten (1966, p. 33); and Dell (1973, pp. 227-8).

The following list provides one example of each attested cluster:

[pt] - pɛ̀tit

[pl] - pɛ̀louse

[bl] - bɛ̀lette

[tf] - Tɛ̀ faut-il...

[tm] - Tɛ̀ manque-t-il...

[tn] - Tɛ̀nez-vous droit.

[df] - dɐ̀ façon ã...

[dv] - dɐ̀vant chez moi

[ds] - Dɐ̀ son crédit

[dm] - Dɐ̀main matin...

[dn] - Dɐ̀ nos jours...

[dl] - Dɐ̀ l'endroit...

[dr] - dɐ̀ Rome

[kp] - Quɐ̀ pensez-vous de...

[kt] - Quɐ̀ ton nom...

[kf] - Quɐ̀ fais-tu donc?

[kv] - Quɐ̀ voulez-vous?

[kž] - Quɐ̀ j'avais pas...

[kn] - Quɐ̀ nous...

[kl] - Quɐ̀ l'on appelle...

[kr] - Quɐ̀rellez ciel et terre

[fz] - Fɐ̀saient...

[fr] - Fɐ̀rez...

[vn] - Vɐ̀nez!

[vl] - vɐ̀lours

[sp] - Cɐ̀ pays-ci...

[sb] - Cɐ̀ beurre est rance.

[st] - Cɐ̀ tonneau-ci...

[sd] - Cɐ̀ docteur-là...

[sk] - Cɐ̀ qui...

[sn] - Cɐ̀ n'est rien.

[sl] - cɐ̀la

[sr] - sɐ̀rein

[šv] - chɐ̀venne

[šm] - chɐ̀min

[šn] - chɐ̀napan

[šl] - chɐ̀lem

[žp] - Jɐ̀ parle...

[žb] - Jɐ̀ babille.

[žt] - Jɐ̀ t'ai vu.

[žd] - Jɐ̀ déclare...

[žk] - Jɐ̀ cause

[žg] - Jɐ̀ garde...

[žf] - Jɐ̀ ferme...

[žv] - Jɐ̀ veux...

[žs] - Jɐ̀ sais bien...

[žš] - Jɐ̀ cherche un moyen...

[žm] - Jɐ̀ montre...

[žn] - Jɐ̀ nomme...

[žl] - Jɐ̀ lave...

[žr] - Jɐ̀ répondrai.

[md] - Mɐ̀ direz-vous...

[mz] - Mɐ̀sure-moi...

[mn] - Mɐ̀nez-moi là.

[np] - Nɐ passez pas.

[nb] - Nɐ bougez pas.

[nt] - Nɐ t'y fie pas.

[nk] - Nɐ quittez point.

[nf] - Nɐ fais rien.

[nv] - Nɐ vous dérangez pas.

[ns] - Nɐ sortez pas.

[nl] - Nɐ lachez rien.

[lp] - Lɐ pain est rassis.

[lb] - Lɐ bon...

[lk] - Lɐ curé...

[lv] - Lɐvez-vous!

[lm] - Lɐ mal est fait.

[rp] - Rɐpartez vite.

[rt] - Rɐtirez-vous.

[rd] - Rɐdonnez-le-moi.

[rk] - Rɐcouchez-vous.

[rf] - Rɐfusez-le.

[rm] - Rɐmettez-vous.

10. The figures from Koschwitz come from an analysis of the passages read by Desjardins, Paris, and Got.

11. Lucci (1976, p. 96) suggests that the favouring of retention in group-initial position may be due to information requirements. Information theoretic studies have established that the point of minimum redundancy in a sentence or clause is at or near its beginning. Thus, says Lucci, it is reasonable that the pronunciation of schwa, which increases redundancy, should be most frequent in group-initial position.

12. Delattre (1966, pp. 32-5) presents a more complex analysis of schwa behaviour in group-initial sequences of clitics, based on the strength and aperture characteristics of the first two consonants.

The results are similar to those provided by the simpler system summarized here.

13. Lucci (1976, pp. 97-8) has shown that the behaviour of schwa is quite different before hesitation pauses which occur in positions where group boundaries are syntactically impossible (e.g. *Nous allons nous occuper de...l'utilisation de ce...procédé.*). Such hesitation pauses are common in the lecture and conversation portions of his study, and are another device for providing the speaker with time to consider what he wants to say (compare the discussion in section 4.1.2). The pauses generally occur after clitics, and in such cases the schwa is always pronounced. This fits with the fact that one of the functions of a pronounced schwa is to slow down the rate of speech. It is evident that the behaviour of such schwas has nothing to do with that of schwas at the end of syntactic groups. It is not discussed further in this study.

14. It was shown in Chapter 3 that complete loss of the liquid in sentences like *C'est un bel arbre* was apparently accepted in the most formal standard French of Period 2. This is confirmed by a remark of Martinon (1913, p. 159), who states that such loss is very old and that it is "no longer" admitted in good speech.

15. Pernot states that, in the case of [Om], the [m] is ordinarily unreleased as well as voiceless.

16. The greater stability of [LO] and [OO] clusters produced through schwa loss as contrasted with [OL] clusters fits with the fact that [LO] and [OO] occur in the absence of schwa loss (e.g. *parc*, *compact*), while [OL] does not. At a deeper level, of course, both these patterns fit with the sonority/aperture conception of the ideal syllable (for discussion see section 4.11.3).

17. Nyrop gives an interesting example from a poem by Alphonse Allart (1825): *trisse* (< *triste*) is used to rhyme with *jaunisse*.

18. Mende (1880, pp. 114-5) claims that schwa is retained more often after a single consonant when the next word begins with a cluster than when it begins with one consonant. The only other author to discuss such a possibility is Malécot (1976, p. 97): he mentions some data which show a slight difference, but provides no statistical results. The other available evidence (Béranger, Koschwitz, and Gendron) suggests that the following word has no influence. Much more work would need to be done before the hypothesis of Mende and Malécot could be accepted.

The above conclusion applies to Standard French. In non-standard dialects, words beginning with [sO] cause some problem, and are frequently preceded by a schwa (Grammont 1894, pp. 79-80; Nyrop 1923, §92, p. 73; Martinon 1913, p. 184; and Leray 1939, p. 182). Examples include *une statue* [ynəstaty] and *une station* [ynəstasjɔ̃]. The difficulty of syllable-initial [sO] is confirmed by the popular loss of the consonant preceding [s] in such words as *express* [ɛspres],

extraordinairement [ɛstra...], and *excuser* [ɛskyze] (Grammont 1894, p. 81; Bauche 1928, p. 51; Leray 1939, pp. 182-3).

Grammont (1894, p. 79) points out that very few words in [sO] are really part of the popular language. Standard French, by contrast, includes many words of learned and semi-learned origin which begin with [sO], so it is reasonable that its speakers would have less difficulty with such clusters than do the speakers of popular French.

19. A third factor is mentioned by Rousselot (1891, pp. 307-8) as characteristic of the Cellefrouin patois. This concerns the length of utterance following the schwa, and resembles the length criterion in group-initial position as discussed in section 4.2 above. Rousselot states that a word-initial group-medial schwa is more likely to drop if the following syllable is long than if it is short: *les tetons* is always [lutə́tū] but *mon teton* may be either [mɔ̃tə́tŭ] or [mɔ̃tətŭ]. Also, loss is more likely where two syllables follow in the same group than where a single syllable follows: *les terreaux* is usually [lātə́răde] but *le terreau* may be [lātərăd]. No such factor has been reported for this position in standard French, but it may well exist since similar criteria operate in other positions in the group.

20. Retention here may be due in part to a desire to pronounce most proper names carefully in order that they be understood: a pronounced schwa enhances the audibility of the name. But proper nouns in general often stand partly outside the phonological and phonotactic norms of the language. In particular, their sounds sometimes change

more slowly than do the sounds in most other words, so they often contain archaic phones and sequences. Increased schwa retention in such words may be due primarily to this factor, which is independent of the nature and precise behaviour of the schwas themselves.

21. A number of authors have sought phonotactic reasons for the inclusion of certain words in this group. For example, E. and J. Bourciez (1967, p. 45) claim that schwa is always retained before a cluster consisting of obstruent + liquid (e.g. *degré*); and Herzog (1913, p. 208) states that loss "appears" to be hindered where any cluster follows schwa, and also between a labial and a sibilant (e.g. *peser*, *faisais*). However, these views do not seem to be correct. Dell (1973, p. 230) compiled as exhaustive a list as he could of words in which he normally retains schwa, and found no phonotactic regularities whatever. In Bazylko's study (1976, p. 68), the following sequences always showed retention: [bəd], [dək], [pəz], [pən], [bən], [bəl], [gən], [dər], [kər], [səd], [vəz], [səs], and [fəm]. Since a majority of these sequences begin with a stop, it is possible that retention is somewhat favoured after stops, but this factor does not seem to be as important as is the frequency of the word. The consonant or cluster which follows the schwa does not have any effect whatever on the behaviour of the schwa: compare Bazylko (1976, pp. 68-79), who found comparable average retention in [#CəC] and [#CəCC].

22. The influence of spelling through the growth of literacy may also be relevant here. In Period 2 and the early part of Period 3, when

many people were illiterate, some of these words may have been learned with a stable vowel (e.g. /bødo/ instead of /bədo/ for *bedeau*). Now, when literacy is almost universal, the spelling (with *e* instead of *eu*) strongly suggests that the vowel is unstable, and hence it is probably learned as such. Retention of the unstable schwa is thus exceptional, while retention of the old /ø/ was of course regular.

23. Some non-standard dialects (e.g. Canadian French) still show schwa in *cet/cette* (the third class of Period 2 clitics). These are now pronounced [sɛt] or [sɛtə] in standard French.

24. Delattre (1966, p. 26) also refers to a desire to maintain the syllabic identity of morphemes in the chain; that is, to avoid a situation where a unit of meaning is represented only by a single consonant attached syllabically to the vowel of another morpheme. This occurs where the schwa of a group-medial clitic is lost (e.g. *un peu de sel* [œ̃pødsɛl], with a syllable boundary between the [d] and the [s]).

25. Mende (1880, pp. 50ff) also gives many examples of retention from the relatively formal speech situations which he observed.

26. Words like these may be pronounced with hiatus ([vudrie], etc.) or with a non-phonological [j] intercalated between the [i] and the following vowel ([vudrije] etc.) - compare Warnant (1968, p. xvi); also Malmberg (1969, p. 123). Thus, the claim that schwa loss in [OəLj] leads inevitably to vowel hiatus (made, for example, by Martinon 1913,

pp. 166-7) is inaccurate. Retention of schwa in clusters of this structure cannot be accounted for solely on the grounds that French speakers desire at all costs to avoid hiatus.

27. Lombard (1964, pp. 12 and 15) draws a distinction between [nj/mj] preceded by liquids or nasals (e.g. *nous renions*, *nous menions*) and preceded by stops or fricatives (*nous soutenions*, *nous semions*). According to him, schwa loss in the former group is much more common than in the latter.

It should also be noted that many of these schwas are in word-initial syllables, where schwa retention is quite frequent even where no [Cj] group follows the schwa. Even forms like *reteniez*, *soutenions* likely show this influence because of analogy with *teniez*, *tenions*, etc. This positional factor is probably a more important source of the observed retention tendency in words like this than is the presence of the nasal + [j] group following the schwa.

28. In the case of words like *atteloire* and *atelier* (see later in the section), another factor may be relevant to the tendency to retain the schwa: there are no [tl(G)] clusters in word or group-initial positions. Although intervocalic [tl] is certainly dissolvable into [t-l], words with etymological [tl] are rare in French: examples include *atlas* and *atlantique*. Thus, schwa loss between [t] and [l] is not nearly as well supported as is loss between such pairs as [k] and [l], [t] and [r], etc.

29. Dell (1973, pp. 257-8) makes a further distinction between word-medial schwas which fall in the middle of a morpheme and those which fall at the end. For him, retention is universal within a morpheme (*chapelier*); but is optional when the [j] does not belong to the same morpheme as the schwa and liquid, but is part of a verbal ending (*appeliez*). Loss is universal across a word boundary (*pres de Lyon*).

30. Retention before *rien* [rjɛ̃] may be favoured because this word always occurs in group-final position; at least, it is always possible for a group-boundary to follow it. A word-final schwa preceding the *rien*, then, falls only one syllable from the end of the group (as in *Je ne demande rien*). In other phonotactic positions, especially after two consonants, retention is favoured in such cases (see, especially, section 4.6.2). The same influence could be operative in the case of words ending in schwa + *rien*.

31. There is another piece of evidence which confirms that [rj] is not a normal group and syllable-initial cluster in modern French, while [lj] is. This concerns the pronunciation of mid vowels before these consonant groups within words (see Rochet, to appear). In the French of Bordeaux, the higher-mid vowel allophones [e], [o], and [ø] occur only in open syllables, while the lower-mid allophones [ɛ], [ɔ], and [œ] occur only in closed syllables. Words like *matériel*, *sérieux*, *orient* usually show [ɛ] and [ɔ] before [rj] ([materjɛl, serjø, ɔrjɑ̃]), which suggests that there is a syllable division between the [r] and the [j]: if the syllable were open (with a [rj] cluster as the onset of

the next syllable), the higher-mid allophones would be used. The higher-mid allophones *are* used before [ɪj], as in *améliorer* [ameɪjore], *bélier* [beɪje], and *Molière* [mōɪjɛr]. The same pronunciations are found in standard French (notwithstanding the transcriptions given in many dictionaries). In this dialect, the law of position regarding mid vowels is not obeyed rigorously as it is in Bordeaux French, but nonetheless higher-mid vowels tend to occur in open syllables while the lower-mid types occur in closed syllables. Thus, it seems that the syllable break falls between the [r] and the [j] even in standard French (but before [ɪj]), and it is therefore not surprising that schwa is retained more frequently before [rj] than before [ɪj].

32. In view of the factor mentioned in note 28 above, the word *atelier* was an unfortunate choice to test the tendency for schwa to be retained in [OəLj].

33. Possible *reasons* for the avoidance of certain types of [OLG] sequences are discussed in section 4.11.2.3.

34. As was the case in Period 2, many speakers of non-standard dialects tend to avoid all [OLG] groups. See section 4.10 for a complete discussion.

35. This idea of Fouché's, which involves the absolute number of consonants which would fall together if a schwa were lost, is not supported by other authors. Malécot (1976, p. 97) claims that a weak factor of this type exists in his data, but does not provide the

figures necessary for an evaluation of its statistical validity. By contrast, Dauses' study (1973, p. 66) contains strong evidence that such a factor is irrelevant to the stability of the schwa, and this fits with the situation observed during Period 2.

36. Dell (1973) states: "Lorsqu'un schwa situé en syllabe finale de polysyllabe est immédiatement précédé de deux consonnes ou plus, son effacement est facultatif" (p. 224) - example *Il boxe souvent*. By contrast, "un schwa précédé de deux consonnes appartenant au même mot ne tombe jamais: *malmener...crevaison...*" (p. 229); "lorsque l'unique consonne qui précède schwa est à l'initiale de mot, schwa se maintient toujours si le mot précédent est terminé par une consonne...on prononce...*quel neveu*" (p. 229); and "Le schwa des monosyllabes *#C#* se comporte exactement comme celui de la première syllabe de polysyllabes commençant par *#Cə-*: on prononce *feuille de chou*" [fœjdəšu] (pp. 229-30). Dell qualifies the absolute nature of these retention rules, but the essential difference between word-final position and the other positions is clear.

37. These data have no value in contrasting the frequency of loss in different positions, since the cases of schwa retention were not counted (there are a very large number of the latter).

38. These examples are of schwa loss in a syllable not immediately preceding the accented syllable of the group (see section 4.6.2 for a discussion of the relevance of the position of schwa with respect to

the accent).

39. As noted in section 2.6, future/conditional forms seem in general to be favourable to schwa loss.

40. Dauses included very few examples where the clitic or the word beginning in [Cə] followed a word ending in a consonant, as opposed to one ending in another schwa (e.g. *cette pelouse*, *père de la*...). He considers double loss in phrases of this type to be equivalent to loss in *sept cerises* and *avec de la crème*, an assumption which is not admissible.

41. The study by Bazylko (1976, pp. 68-70 and 73-77) showed relatively rare loss of schwa in word-initial position after a word ending in a consonant. His numerical results are of course not comparable with those of any other study, but they at least hint that loss in this position is less common than Dauses believes.

42. On the subject of these two compounds, Dauses (1973, p. 72) writes: "...'porte-feuille' est tout-à-fait courant, tandis que...'porte-faix' n'est guère utilisé dans la langue de tous les jours".

43. Dauses (1973, p. 72) refers to "la fréquence très basse du mot 'inculper' dans la langue de la conversation courante".

44. Dauses (1973, p. 72) states that the difference in schwa loss frequency in these two words "pourrait être due au fait que 'percera la feuille' relève de la langue de tous les jours, tandis que 'versera

l'argent sur un compte' relève d'une terminologie technique".

45. The situation is quite different in the case of multi-schwa sequences: there the dissolvability theory is of considerable value. See the discussion in section 4.7.1 below.

46. The word-final consonant is often lost in the last two examples and in others like them, leaving [sɛfnɛtr] (a common pronunciation in Quebec), [irpli], etc. This does not, however, alter the fact that sequences like [tfn] and [lrpl] are dissolvable.

47. Delattre (1966, p. 19, note 2) gives the approximate order of apertures for French consonants as follows (beginning with the least open): [p, t, k, b, d, g, m, n, f, s, š, v, z, ž, ɲ, l, r]. For more details on the aperture theory, see Delattre (1966, pp. 150-52).

48. Malécot (1955, p. 55) also claims to have shown that schwa loss in [CCəC] occurs more easily when the resulting 3-member sequence is articulated from back to front in the mouth (e.g. *fortement* - [rtm]) than otherwise (e.g. *flasquement* - [skm]). However, Malécot's own data do not in fact confirm the existence of such a tendency, and Dauses (1973, pp. 60-63) has provided further evidence that this theory is not well founded. Compare also Léon (1966, p. 115).

49. Gendron's French-Canadian informant loses the liquid completely in the two examples of [OLø#C] which occur in his texts.

50. Compare also Léon (1966, p. 115), who writes: "L'élimination du E caduc dans ces cas est peut-être possible, au prix d'un gros effort articulatoire. Réalisée couramment? Certainement pas."

51. The prevalence of [pəskə] in present-day Parisian French is shown by the results in Malécot (1976, p. 105): the reduced form occurred in 93.8% of all occurrences of *parce que*.

52. Martinet attempts to explain the difference in insertion percentage between *arc-boutant* and *ours-blanc* on the basis of frequency: the traditional spelling and pronunciation is more likely to be respected in the learned *arc-boutant* than in the everyday *ours-blanc*. However, Léon (1966, p. 118) points out that these results agree with the pattern that schwa is lost more frequently when it precedes two or more syllables than when it precedes only one syllable. This is likely the more important factor.

53. In Southern French, where etymological schwas are not normally lost between consonants, insertion of non-etymological schwas in phrases like *ours-blanc* and *arc-boutant* is rare (compare Martinet 1945, pp. 46-7).

54. In non-standard dialects, a schwa may appear after the first consonant of a three-consonant sequence, apparently as the result of an effective metathesis similar to that which occurs in group-initial position (see note 8 to section 4.2 above). Examples: *car je dis* [karəždi] (Martinon 1913, p. 176, note 1); *sur le lendemain* [syrəlɑ̃dmɛ̃],

pour redanser [purərdɑ̃se] (La Follette 1960, pp. 30-31).

55. Dauses' results are as follows: For Q1, the percentages of subjects who stated that they lose both schwas are:

	Students	Adults
C'est unɐ̯ pɐ̯louse.	41.4%	47.1%
jettɐ̯ cɐ̯ truc-là	38.7%	29.8%
cettɐ̯ fɐ̯nêtre...	27.0%	23.5%
cettɐ̯ sɐ̯maine.	19.8%	11.8%
unɐ̯ sɐ̯maine.	18.9%	11.8%
attends unɐ̯ sɐ̯conde.	14.4%	5.9%

And for Q3:

	R1	R1 + R2
68. cettɐ̯ pɐ̯louse...	53.3%	75.5%
67. unɐ̯ pɐ̯tite voiture	51.1%	66.7%
66. cettɐ̯ cɐ̯rise.	48.9%	68.9%
27. pɛ̃rɐ̯ dɐ̯ la...	46.7%	55.6%
56. unɐ̯ pɐ̯louse...	40.0%	64.4%
43. cettɐ̯ chɐ̯mise.	24.4%	57.7%
30. unɐ̯ chɐ̯mise.	20.0%	37.8%
19. cettɐ̯ sɐ̯maine.	6.7%	28.9%
3. seizɐ̯ sɐ̯maines...	6.7%	24.5%

56. A chi-square test on the figures given shows a probability of about 96% that the nature of the first consonant affects the loss pattern (χ^2 = 4.1 for one degree of freedom).

57. According to the study of Malécot (1976, p. 102), *que jə* is not strongly fixed either. His informants show 23 instances of *quə je* against 30 of *que jə*.

58. According to Picard (1974, p. 9), both schwas of a [CCəCəC] sequence in Quebec French may be lost if the consonant between the schwas is a fricative: *à parlə də cə que jə t'ai dit* is possible. This is reminiscent of the Period 2 favouring of double loss in [CəCəC] when the middle consonant was a fricative.

59. This is confirmed by a chi-square test, considering Table 10 as a contingency table. The probability that the second schwa behaves differently in clitics and in word-initial position is greater than 99% (χ^2 = 10.05 for 1 degree of freedom).

60. Further examples of schwa loss between identical consonants are given by Genlis (1901, *passim*), Rousselot and Laclotte (1902, pp. 146-7), and Bally (1965, §538, p. 323).

61. Furthermore, retention is common only where schwa is in a clitic: retention in this position is frequent even where no geminate is involved.

62. A very few words show an aspirate *h* in a medial position. The examples *dehors* [dəɔr] and *rehausser* [rəose] are given by Martinon (1913, p. 248, footnote).

63. The initial [h] in words like these was not lost until the 16th or 17th century (Pope 1966, §196, p. 94); that is after the loss of schwa in hiatus was essentially complete. Nevertheless, since the loss of schwa remained a dynamic process in the French of the 17th and later centuries, the most logical development phonotactically would have been the immediate loss of final schwas in words and clitics which preceeded words beginning with [V] < [hV].

64. No doubt there is also an encoding factor in operation here. An unfamiliar word requires more effort to produce than does a familiar one, and thus it is natural to pronounce a schwa, if it is present, in the former case.

65. Compare also Malécot (1976, p. 96), who writes:

> The /ə/ of polysyllabic words, excluding those of prefixes (*revenir*, etc.) drops 97% of the time in non-initial positions after a single consonant but only 3% after two....

66. This fact does not mean that French violates universal tendency 17: there are many French word-initial clusters with the structure [OL] but none with the structure [LO]. Thus, overall, the former type is much more common than the latter.

67. The lack of significance here is confirmed by a chi-square test, using Table 13 as a contingency table. The probability that schwa loss is unaffected by the preceding consonant is in excess of 60% ($\chi^2 = 0.157$ for 1 degree of freedom).

68. Delattre (1966, p. 153) defines the force of articulation of a single consonant as being inversely proportional to the length of the preceding vowel: the shorter the vowel, the stronger the following consonant, and vice versa. He quotes tentative figures for the length of vowels before all French consonants except [w] and [ɥ] (these were presumably omitted from consideration because they never follow a vowel within a single word). Thus, the basis for his statement that [j] is stronger in articulation than [w] and [ɥ] is not clear. The strength of [l] was revealed as being much greater than that of [r], as preceding accented [ɛ] vowels showed lengths of 21 and 42 milliseconds respectively.

69. A single group-final consonant, although it closes the final syllable, does not destroy the ideal syntagmatic arrangement (in which consonants and vowels alternate). A group-final cluster, by contrast, does destroy this alternation.

Chapter 5

General Conclusion

5.1 - Summary of the progress of schwa loss from the 9th century to the present -

The concluding sections of Chapters 2, 3, and 4 each include a summary of the facts of schwa loss for their respective Periods. In the present section, the development of schwa loss through all three Periods is summarized in a unified manner. One of the goals of this summary is to emphasize the diachronic continuity of the gradual increase in schwa loss. The fact that there are major differences among the types of data available in the different Periods, and the different treatments that result, tend to leave the impression that schwa loss really developed in three clearly defined stages. This is of course not the case: the change was a continuous and gradual one.

The first environment in which schwa loss became general in Old French was in word-final position before a word which was closely knit to the schwa-bearing form and which began with a vowel (elision). Such loss was extremely common from the earliest texts (9th century) on. Otherwise in word-final position after a vowel and before and after vowels within the word, loss became general in Anglo-Norman by the early 13th century and in central French by the end of the 15th century. Loss began in these latter positions, especially in environments which were favoured by morphological analogy, as early as the 11th or 12th centuries.

Loss of schwa in a word-initial syllable between consonants began in the phonotactic positions [#OəL] and [#OəG] by about 1100, but remained sporadic throughout Period 1. Loss in word-medial syllables between consonants, when one of them was either a liquid or a semivowel, began even earlier (about 1000). It was especially favoured in future and conditional forms, and while it was probably commoner by the end of Period 1 than was loss in word-initial syllables, it was still far from regular. Loss between obstruents in both word-initial and word-medial positions was virtually unknown until about 1500. In word-final syllables after consonants, loss began under the impetus of morphological analogy by the 12th century, and became common in Anglo-Norman by the 14th century. General loss here in central French did not begin until the 15th century at least.

The 16th and 17th centuries were characterized by a great increase in schwa loss in consonantal environments. Within words, loss became general after a single consonant by the mid-17th century, although it developed more quickly when either the preceding or following consonant was a liquid than otherwise. After two consonants within words, loss still remains incomplete today, but was found in some environments (especially in [LOəL]) by 1600. Loss before [Lj], especially [rj], apparently became disfavoured for distributional reasons about 1600 and remains so today. In word-final position after one consonant, loss developed through the early part of Period 2 independently of the preceding consonant, and had become regular by the mid-17th century. Loss after a cluster in word-final position

was delayed with respect to loss after a single consonant, but was quite common by the 17th century. Loss was also common by this date in the first syllable of words and in clitics.

Schwa in group-initial position was frequently lost after a single consonant by the mid-17th century, and there is no evidence that loss was inhibited before or after any particular type of consonant. Sequences of schwa in group-initial position generally showed retention of the first schwa when the first consonant was a stop and its loss when the first consonant was a fricative and the second a stop, but data on this position are severely limited. Period 2 sequences of schwa in group-medial position showed great variation, but two patterns can be observed: (a) loss of successive schwas was very frequent when the intervening consonant was a fricative and rare otherwise, and (b) retention of the first schwa of a sequence, when this followed a single consonant, was found only when it fell in a clitic (never in word-final position). To conclude the description of schwa behaviour during Period 2, it may be noted that loss was not impeded between identical consonants, and that [OLG] sequences were frequently eliminated in Canadian French and likely in other non-standard dialects as well.

The preceding material on schwa loss during Periods 1 and 2 is phrased almost entirely in terms of the position of schwa in the word and the group, and the consonants which surrounded the schwa. It must be emphasized that this is not because it is believed that these were the only influences on schwa loss, but merely because they are the only factors for which sufficient data are available to permit a

detailed description. Factors such as style, frequency of the word in which the schwa appeared, and a desire to emphasize certain words very likely had an important influence as well. Normative influences, however, did not have much effect until late in Period 2 or early in Period 3 (see section 3.1.2). It may also be noted that purely phonetic factors were probably relatively more important during Period 1 and the early part of Period 2 than they are today, since loss was at first common only in very restricted phonotactic environments.

The current situation with respect to schwa loss may be summarized as follows:

(1) Any single schwa in a group-initial syllable may be lost. Loss is apparently more frequent after a non-stop consonant than after a stop. In the latter case, loss is more frequent before a non-stop than before a second stop. In addition, loss is commoner in frequent words and phrases than in rare ones, and also where the group in which the schwa occurs is relatively long.

(2) In general, sequences of schwas beginning in group-initial position show loss of the first schwa when it falls between a non-stop and a stop, and loss of the second schwa (with retention of the first) otherwise. However, non-phonetic factors, especially which element the speaker desires to emphasize, are of great importance.

(3) Schwa in group-final position is nearly always lost, after a cluster as well as after a single consonant.

(4) Schwa after a single consonant within a group is almost always lost in word-final position, is usually lost in word-medial position, and is fairly frequently retained in word-initial syllables and in clitics. Retention is apparently more frequent in clitics than at the beginning of words. In the latter position, rare words show the greatest retention tendency. In normal informal speech, group-medial schwa after a single consonant is usually lost: the position of the word-boundary has little effect in this style.

(5) The behaviour of schwa in group-medial position after a consonant cluster depends on three main factors: (a) position in the word (loss is quite common in word-final position, and within words in future and conditional forms; and is relatively uncommon in other positions), (b) position with respect to the accent (loss is more frequent if at least one syllable separates the schwa from the accent than if the accent falls in the syllable after the schwa), and (c) frequency (retention is found more often in rare than in common words). Details of the operation of the word-position and frequency criteria remain to be obtained.

(6) Much variation occurs in group-medial sequences of schwa. When the first schwa follows a single consonant in word-final position, it is usually lost (and the second schwa is usually retained). When the first schwa is in a clitic, retention and loss are about equally common. Sometimes two successive schwas are lost, and occasionally all the schwas in a sequence are retained.

(7) Schwa loss is not impeded between identical consonants.

(8) Schwa is generally retained in standard French before "aspirate *h*", but this pattern is not widely followed in non-standard dialects.

(9) Schwa loss in [O∂LJ] sequences is generally avoided in standard French, while many non-standard dialects avoid all consonant groups with the structure [OLG].

(10) In general, non-phonotactic factors (some of which are mentioned above) have a very great influence on present-day schwa behaviour. The chief factors are: stylistic matters in general, including the physical surroundings, the person spoken to, and the speed of delivery; the desire to emphasize certain forms; information and clarity requirements; the frequency of the schwa-containing form; and the influence of normative grammar.

A number of theoretically interesting aspects in this overall development have been mentioned above, especially in the concluding sections of chapters 2, 3, and 4. The purpose of the remainder of this chapter is to provide a general review of these points and to extend the discussion where appropriate.

5.2 - On the interplay of factors in linguistic change -

The importance of considering all the influences which play upon a linguistic system or subsystem has been noted in section 2.9.2 above, where it is shown that the early stages of schwa loss were in part grammatically conditioned. The overall development of schwa loss to the present day dramatically confirms the dangers inherent in a simplified, "before-after", model of sound change.

The fact that the sound change represented by the loss of French schwa is not yet complete and "regular" forces the description of an

intermediate stage, which after all is what the present extremely complex pattern represents. That is, it is not possible to simply describe the syntagmatic environments in which schwa loss occurred. Many of the most important factors involved in the present behaviour of schwa are non-phonetic in nature; the vital point is that it is these same factors which will condition the evolution of the system in the immediate future. The neglect of any one of them would thus condemn the diachronic linguist to a description which is only partly accurate, and would largely vitiate any attempt to understand the causes of the evolution to date.

In fact many grammarians and linguists tend, or at least have tended, to neglect most of the non-phonetic forces active in determining schwa behaviour today. This is particularly serious in the case of the more formal versions of standard French, where a whole range of non-phonetic factors, from normative influences to the needs of oratory, play a decisive role. It is clearly a mistake, for example, to attempt to account for the almost universal retention of group-initial schwas in oratorical styles exclusively by the fact that they are group-initial. This phonotactic constraint is of course relevant, since not *all* schwas are retained. But it is not the only factor - if it were then a similar tendency would be observed in informal and non-standard varieties. Ignoring one of the decisive elements - the stylistic level - makes it impossible to completely understand the modalities of the diachronic change as reflected in the current synchronic situation.

A case may be made that the loss of schwa is just about as regular, from a phonetic point of view, as it is ever going to be. Loss is *possible* in almost all syntagmatic positions; the most common exceptions are found in sequences of schwas, where the possibility of one being lost is influenced by the behaviour of the others. It is not really conceivable that a future stage of evolution will show the possibility of losing five schwas in five successive syllables: the requirements of syllable structure essentially prohibit such a development. The view of Rosset (1904, pp. 445-6), mentioned above in section 3.1.2, is relevant here. He feels that, without normative pressures, all schwas not needed for phonotactic reasons (to facilitate pronunciation by limiting the syntagmatic accumulation of consonants) would by now have disappeared. In fact, it seems that almost all such schwas have disappeared in informal speech (the informant analyzed by Gendron 1966, for example, retains only 2 etymological schwas out of 122). Retention in more formal types of speech must therefore be largely ascribed to non-phonotactic factors. This fact is reflected in the work of a number of current investigators, especially Pierre Léon.

The widespread tendency to concentrate on phonetic criteria in the description of schwa behaviour is a special case of the lack of interest shown by many historical linguists in examining *all* the factors behind any given linguistic change. The Neogrammarian hypothesis that all sound change is regular, and later on the advent of structural and generative linguistics, have tended to relegate to

obscurity all factors not internal to the spoken chain and to the paradigms (phonological, grammatical, semantic) which may be constructed from it. Social, stylistic, normative, and even analogical factors are thus very frequently forgotten or ignored. As Rochet (1976, p. 15) puts it:

> The *a priori* rejection of certain aspects of the empirical data leads to explanations or descriptions that are formulated in terms of arbitrarily selected factors, while the ignored evidence may contain the determining elements of the change.

For further discussion of the interplay of internal and external factors in language change, see Rochet (1976, pp. 14-18).

Historical linguistics, and the descriptive branches of linguistics on which it is partially dependent for data, have progressed to the point where the detailed mechanisms of diachronic developments should always be sought. Of course, really detailed information is available only for changes which are occurring today or which occurred in the immediate past. Sometimes, as is the case with the history of schwa through Period 1, almost no social and stylistic information is available: an approach which emphasizes phonetic regularities is then inevitable. But it should not be forgotten that such accounts are always partial, and cannot hope to fully describe let alone to fully account for the changes in question. Any deliberate choice to limit historical study to certain factors, thereby excluding the remainder, is nowadays inexcusable. Real progress in understanding the detailed mechanism of change can only come from studies of current changes in all their complexity.

5.3 - The overall effects of schwa loss on the French phonotactic system -

As noted in section 1.4.2.1, vowel hiatus was very common in early Old French. Loss of schwa before and after other vowels, which was essentially complete by 1500, was one of the major factors responsible for the drastic reduction in the number of hiatuses by the 16th century (the others are summarized in section 1.4.2.1). Schwa loss around vowels thus fit in with other types of change to remove [VV] clusters and move the French syntagm closer to the [CVCV...] ideal.

Loss of schwa in the vicinity of consonants has resulted in the production of many new consonant groups in all positions. New postpausal clusters were, before 1500, limited to the type [OG] (e.g. *veoir* [vəwɛr] > [vwɛr]): the only other [##CəC] sequence which showed early loss was [OəL], and [OL] already existed etymologically. But with the increase in schwa loss which characterized the 16th and 17th centuries, group-initial clusters could show any combination of two consonants whatever. Klausenburger (1970, pp. 66-67 and 69-71) lists the occurrent two-member clusters of present-day French,[1] dividing them into fully integrated and marginal. In no case does he consider a cluster found only through schwa loss to be fully integrated.[2] In defense of this, Klausenburger (1970, p. 73) writes as follows:

> Postpausal consonant groups which are formed due to the loss of /ə/ must be termed para-clusters [marginal clusters] because there is a kind of marginality involved in their

> occurrence. In these groups, we are dealing with a modern trend, a pronunciation characteristic of fast, colloquial speech. It is a stylistic marginality as of now, but gives every indication of becoming the rule in the future.

Since loss was common between any pair of consonants in the 17th century, it is difficult to accept Klausenburger's contention that it is "a modern trend". It is, however, quite true that loss is not common in slow, careful speech. Another factor which supports the interpretation that some group-initial clusters formed through schwa loss are marginal is that some non-standard dialects avoid them even when the etymological schwa is lost (e.g. *le bonhomme* [əlbɔnɔm] - see note 8 to Chapter 4 for the details). Such avoidance provides strong evidence for the lack of integration of these clusters in the dialects concerned - a feature which is easily understood in terms of the sonority and aperture criteria of syllabic structure. Klausenburger goes on to suggest that all the clusters are on their way to becoming integrated. In fact we do not have adequate information on the behaviour of schwa in this position in informal varieties of standard speech and in non-standard dialects to be sure of the direction of evolution. What data there are on the non-standard varieties suggest that the trend may be toward the elimination of some types of group-initial clusters.

Whatever the precise status of these clusters, there is no doubt that schwa loss in group-initial position has, since the 17th century, resulted in the production of many new types of consonant clusters. This process, like the removal of vowel hiatus, has had the effect of

considerably increasing the percentage of consonants in the syntagm.

As regards pre-pausal clusters, it was noted in section 1.4.2.2 that many of those found in Old French were lost through loss of syllable-final consonants. The only survivals into present-day French are a few clusters in [rC] (e.g. in *arc*, *serf*, *ours*). Schwa loss, however, has considerably replenished this class. Klausenburger (1970, pp. 68-9) lists the following modern types:

(a) [LC], e.g. [rt] in *carte*, [rl] in *perle*, [lž] in *belge*

(b) [OL], e.g. [br] in *chambre*, [fl] in *souffle*

(c) [OO], e.g. [sk] in *casque*, [pt] in *apte*, [tm] in *rythme*

(d) [COL], e.g. [rtr] in *martre*, [skl] in *muscle*, [ptr] in *sceptre*

(e) [kstr] in *dextre*.

All of these clusters must be considered to be fully integrated, since schwa loss in group-final position is very common regardless of the number of consonants preceding the schwa (section 4.4).[3]

Schwa loss in group-medial position has greatly augmented the class of consonant sequences. As was the case with prepausal clusters, all group-medial sequences except those of the form [rC] were lost in Old French (section 1.4.2.2). At this stage, then, the only consonant which could close a word-medial syllable was [r] (since sequences of the types [VCV], [VOLV], and [VOGV] were divided after the vowel). Loss of schwa in word-medial and group-medial word-final position has revolutionized this situation, since it occurred uniformly between two consonants, and frequently in consonant clusters. Thus, all consonants

(except [w] and [ɥ]) are found as the first [C] in [VCCV], and in many cases they can be considered as closing the syllable containing the first vowel (e.g. in *pureté* [rt], *galerie* [lr], and *acheter* [št]).

Thus, French phonotactic history may be divided into two principal periods. The first, which ran from early Old French times to about the 15th century, was characterized by the loss of many syllable-final consonants. This resulted in the reduction of a large number of consonant clusters and sequences, and the opening of many syllables (both within and at the ends of groups). The second period, from the 15th century to the present, shows a tendency toward the loss of vowels (schwas and vowels in hiatus), with a consequent increase in the frequency of consonant groups and the closing of many syllables.[4] The current situation is highly uncertain. On the one hand it seems possible that the omission of certain types of schwa (e.g. those in group-initial position, and within groups in clitics and in the first syllables of words) will become more and more frequent. By contrast, the tendencies found in some non-standard dialects toward the avoidance or elimination of complex consonant groups suggest the presence of forces which favour the return to a more vocalic syntagm.

5.4 - Schwa loss and universal tendencies in the syntagmatic arrangement of vowels and consonants -

In section 1.3, a number of universal theories of phonotactic organization were discussed. The first of these concerns the tendency for the same consonant structures to appear in group-initial as in

group-medial syllable-initial position, and in group-final as in group-medial syllable-final position. The other three theories concern the overall arrangement of vowels and consonants in the syntagm, and are discussed in section 1.3.3. The patterns of French schwa loss have a bearing on each of these four theories: the relevant items have all been discussed above, mostly in the concluding sections of chapters 2, 3, and 4. The purpose of the present section is to summarize those aspects of schwa behaviour which are relevant to each of the theories, and to add further discussion where appropriate.

5.4.1 - The similarity between group-initial and syllable-initial positions, and between group-final and syllable-final positions -

The theory that syllables tend to begin in similar ways (that is, with the same consonants or similar types of consonant clusters) in both group-initial and group-medial positions, and tend to end in similar ways in both group-final and group-medial positions (section 1.3.1),[5] is reflected by the overall development of schwa loss in consonantal environments (loss in the vicinity of a vowel has no influence on syllable onsets and codas). That is, the chronology of schwa loss shows that, in general, new types of syllabic onsets appeared about the same time in word or group-initial position as in medial syllables, and in word or group-final and group-medial positions.

All Period 1 losses produced syllable types which already existed. Loss occurred in the following environments:

(1) [L∅C], producing word-medial syllable-final [l] and [r], and word-medial syllable-initial consonants (section 2.6),

(2) [#O∅L], [#O∅G], [O∅L], and [O∅G], producing syllable-initial clusters of the types [OL] and [OG] (sections 2.5 and 2.6).

Conversely, syllable types which were *not* produced did not exist etymologically during the later part of Period 1. These include syllable-initial [OO] and [LO] clusters, and syllable-final consonants other than [l] and [r]. The delay of loss in these cases may thus be understood in terms of the syllabic onset/coda principle.

The development of general schwa loss in the vicinity of consonants during Period 2 occurred, in all cases, about the same time in both positions in the group. Word-medial loss of schwa between obstruents began about the same time as word-final loss after obstruents

(sections 3.2 and 3.3.1): both processes produced obstruents as syllabic codas. Similarly, loss of word-final schwa after consonant groups developed in both group-final and group-medial positions (section 3.3.2). The extension of loss in group-initial syllables to sequences of the form [##0ə0] and [##Lə0] was accompanied by sporadic loss of two successive group-medial schwas: both processes resulted in production of new syllabic onsets of the [00] and [L0] types (see the detailed discussion in section 3.11.2.4).

Period 3 also shows a striking example of the relevance of the onset/coda principle. As noted in section 4.7.1, two successive schwas may be lost in group-medial position: in all such cases the resulting consonant sequence is at least marginally dissolvable into a [C] coda and a [CC] onset. By contrast, loss of three or more successive schwas is not attested: most consonant sequences resulting from such loss would not be dissolvable into a group-final coda plus a group-initial onset.

It is clear, then, that the overall history of schwa loss in French provides clear support for the syllabic onset/coda principle; conversely, certain parts of that history may be understood in terms of the principle. The schwa data support the notion that the implicational relationships involved operate in both directions. That is, a given type of syllabic onset is likely to appear in group-initial position only if it also occurs in group-medial position, *and vice versa*; likewise a given coda is probable only if it occurs in both positions. Support for this interpretation comes from the fact that new French

onsets and codas appeared in both positions about the same time. If the principle operated in one direction only (for example, if a given onset were likely in group-medial position only when it occurred at the beginning of groups), one would expect new syllabic structures to appear first in one position with respect to the group (in this example, in group-initial position). Syllable onsets and codas thus appear to be *mutually* supporting within and at the beginnings or ends of groups.

This observation has implications for the understanding of the overall forces responsible for schwa loss in French, since the onset/coda principle as described here could not be responsible for initiating change which resulted in schwa loss in certain environments. Along with other structural factors such as those discussed in the following subsection (and see the remarks in section 2.9.3), the onset/coda principle must be seen as a passive influence on schwa loss. Given a general pressure toward the loss of schwa (see the discussion on this in note 25 to Chapter 2), it is reasonable to hypothesize that one of the factors in channelling the loss was the desirability of maintaining the same types of syllabic onsets in group-initial and medial positions, and similar syllabic codas in group-final and medial positions. The latter cannot be considered to be direct causes.

5.4.2 - The ideal syntagm -

It was pointed out in section 2.9.3 that the loss of schwa in the environment of a vowel fit with the theory that the ideal form of the

syntagm involves alternating vowels and consonants. Loss of schwa from [əV] and [Və] sequences brought the French syntagm closer to this ideal by eliminating vowel clusters. Loss of schwa in most consonantal environments ([##CəC], [CəC], and [CCə##]), by contrast, moved the syntagm farther away from the ideal structure by adding consonant groups. The fact that loss around consonants has been very common in French since about 1500 is a clear indication that this theory is too general to account for all syntagmatic arrangements: see the discussion in section 1.3.3.1 above.

Schane (1972a, pp. 216-8 and 221-3) does not interpret the facts of schwa loss in this way. He adheres to a strict view of the theory of the ideal syntagm (or as he calls it the theory of preferred syllable structure), and is thus forced to admit that schwa loss in consonantal environments is unnatural with respect to syllable structure. It must therefore be natural, he says, with respect to some other universal pattern in language. Schane postulates that the loss in group-final position, which he says occurred earlier than loss between consonants in group-medial position, is natural within the system of accent dynamics, which holds that the accent tends to fall on the same syllable in each accentual unit (word, group, etc.).[6] The loss of group-final schwa resulted in the regularization of accent placement: previously it fell on the last syllable of the group except when this was a schwa, when it fell on the preceding syllable. This leaves loss in group-medial position, which Schane describes as an unnatural change due to a "perceptual strategy": "a tendency to give

the same surface representation to the same forms" (p. 223). This loss did result in uniform surface representations, since all pronunciations of words ending in underlying /Cə/ came to be pronounced without schwa (in group-medial position as well as at the end of the group). Schane also states that loss in group-medial position might have been due to "internal structural pressures", but does not elaborate.

This account of schwa loss and the possible forces behind it is first of all inadequate with respect to the facts of loss. Two items are important here: the postulated evolution is greatly simplified from its true form (for example, no account is taken of loss in group-initial position), and the chronology for loss in group-final vs. medial positions is incorrect (sporadic loss occurred earlier within words than in word or group-final positions, but loss became general about the same time in both positions). These inadequacies in Schane's treatment of the facts leave his suggestions as to the influences of accent dynamics and the "perceptual strategy" without foundation. It is clear that a less extreme view of the tendencies behind syllable structure is the answer to the problem: in fact no recourse to other theories is necessary because the production of consonant clusters is not really unnatural. It can be examined and understood in the light of less general tendencies in syllable structure.

5.4.3 - The relevance of sonority and aperture -

A number of schwa loss patterns fit with the observation that the

consonants of a syllabic margin (when there is more than one) tend to be arranged with the less open and sonorous sound farther from the syllabic nucleus (section 1.3.3.2). These patterns are:

(1) Restriction of loss in [#CəC] to [#OəL] and [#OəG], through Period 1 and the 16th century. Loss from the phonotactic types [#OəO] and [#LəO] was not found at that time (sections 2.9.3 and 3.11.2.3).

(2) Restriction of loss where a syllable-initial [LG] cluster would result, as contrasted with general loss before the [OL] and [OG] types (sections 3.11.2.2 and 4.11.2.3).

(3) The lack of loss from word-medial [OOəO] and [OLəO] sequences, during Period 2. The sequences [OOO] and [OLO] cannot be divided so as to produce either a two-consonant coda or onset of the ideal type (from the point of view of sonority and aperture). By contrast, [COL] from [COəL] can always form the ideal syllabic onset [OL] (see section 3.11.2.2).

In addition, sonority/aperture relationships are important in understanding the reductions of syllable-final consonant clusters produced through schwa loss in word-final position (both within and at the end of groups). Such reductions have occurred throughout Periods 2 and 3: see section 4.11.3. Reduction (partial or complete) is most common after [OL] clusters, that is in cases where the coda seriously departs from the ideal structure. The result is either complete suppression or phonetic strengthening (reduction in sonority and aperture) of the liquid: in either case the syllable conforms much

more closely to the ideal type than it would if the liquid were fully articulated. Optional reduction in the phonotactic types [LO] and [OO] is attested only during Period 3: [LO] is a coda of the ideal type, while [OO] falls between [LO] and [OL] in its sonority and aperture properties.

It is obvious that sonority/aperture relationships play a major role in determining the stability of schwa in [CəCC] and [CCəC] sequences, and in determining the fate of the consonant groups which result when the schwa is lost. But they are not the only relevant factors. The other major syllabic influence concerns the number of consonants which must appear in syllable-final position. Since French syllable divisions occur such that the maximum possible number of consonants serve as an onset to the second syllable, a two-consonant coda is less well integrated than is one with a single consonant (section 3.11.2.2). This is reflected in two patterns:

(1) The impossibility of schwa loss in word-medial [LOəO] sequences during Period 2 (section 3.11.2.2), despite the fact that the syllable-final [LO] cluster which would have resulted from loss is of the ideal type. By contrast, loss was possible in the [CəOL], [CəOG], and [COəL] types, where the two-member cluster could fall in syllable-initial position.

(2) Syllable-final clusters of the type [LO] sometimes show reduction in present-day French, although they form syllabic codas of the ideal type (section 4.11.3).

5.4.4 - Detailed syllable structure patterns -

It was noted in section 1.3.3.3 that certain of the specific tendencies in syllable structure observed by Greenberg (1965) form special cases of the more general sonority/aperture criterion. Thus some of the cases where sonority and aperture are relevant to schwa loss (as listed in the previous section) are also examples of the operation of Greenberg's tendencies:

(1) The occurrence of loss in Period 1 [#OəL] sequences and its absence in the case of the [#LəO] type conforms to tendency 17 (initial [LO] clusters are found only where [OL] clusters are found).

(2) The possibility of loss in [#OəG] during Period 1 may be understood in terms of tendency 19 (voiced semivowels are not followed by obstruents in initial position), although there were no [#GəO] sequences in the French of this Period.

(3) The fact that [OL##] clusters (from [OLə##]) are reduced more frequently than are [LO##] types (from [LOə##]) fits with tendency 18: final [LO] clusters are more common than are [OL] ones.

Greenberg's observations are useful in understanding two other schwa loss patterns. The first concerns the Period 3 pattern which shows greater frequency of loss from group-initial syllables when the schwa falls between a stop and a fricative than when it falls between two stops (section 4.11.2.2). This conforms to tendency 7 (stop + fricative clusters are more common in initial position than are stop +

stop clusters).

The final item of interest is the greater frequency of clusters which consist of two consonants over those which consist of three or more (tendencies 1 and 2). As noted in section 4.11.2.1, schwa loss in word-medial position is somewhat more common when a two-consonant group results than when three consonants fall together. Greenberg's tendencies cannot be applied strictly to schwa behaviour in medial syllables, since they are based on observations of initial and final clusters only. But it is nonetheless interesting to observe that the same tendency seems to be applicable to the production of consonant groups in medial position.

5.5 - The status of the word in modern French -

According to Pulgram (1967, p. 1639), the word does not exist as a phonetic or phonological entity in current French. For him, the rhythmic group (or cursus) is divided into syllables: there is no intermediate phonetic unit such as the English word or the German morpheme.[7] While the basic prosodic structure of French depends to a large extent on the syllable and the group, word-boundaries have not been completely obliterated. Rochet (1977) has shown that a number of morphophonemic phenomena depend on the existence of a word-boundary, and therefore mark it phonetically. Among these is the behaviour of schwa (Rochet 1977, pp. 190-91).

The present study has revealed a number of instances in which the schwa loss patterns of Periods 2 and 3 depend on the position of

the schwa in the word. These are:

(1) The 16th century limitation of loss in word-initial position to the sequence types [#0əL] and [#səO]. The lack of loss from the types [#LəO] and [#0əO] (other than [#səO]) reflects the influence of the preceding word-boundary (section 3.11.2.3).

(2) The first schwa of a group-medial [VCəCəCV] sequence is rarely retained when it falls in word-final position; retention of the first schwa is frequent when it falls in a clitic. This pattern is found during Period 2 (section 3.11.2.3) as well as during Period 3 (section 4.7.1.1).

(3) Period 3 behaviour of schwa in group-medial position after a single consonant depends primarily on its position in the word. Retention is relatively common when the schwa falls in a clitic or in the first syllable of a word, and much less common in word-medial and final positions (section 4.5).

(4) Loss of schwa in group-medial position after a consonant group, during Period 3, is relatively frequent in word-final position, and within words in future and conditional forms.[8] Loss is quite infrequent in other word-medial positions (section 4.6.1).

Since the loss patterns of some schwas depend on word-boundaries, the latter may be overtly marked by schwa behaviour. In common with most other phonic elements whose role is partly demarcative,[9] schwa marks word-boundaries in a relatively erratic manner. Unlike many other such elements, the marking is probabilistic rather than absolute. When the first schwa of a two-schwa sequence is retained

after a single consonant, it is *probable* that a word-boundary precedes this consonant; when a single schwa is lost in group-medial position after a consonant cluster, it is *likely* that there is a word-boundary after the schwa; and so on.[10]

This relatively weak marking of word-boundaries does not alter the fact that they must exist in the competence of native speakers in order for the probabilistic patterns to exist. The facts summarized above show, then, that the development of the group as a phonotactic unit in French at the end of Period 1 and the beginning of Period 2 never eliminated the word from phonotactic relevance. The word is clearly more important to the phonetic and phonological structures of modern French than some scholars have argued (compare, for example, Pulgram's statement given above).

5.6 - The importance of schwa behaviour to the prosodic system of French -

The principal historical effect of schwa loss on the prosodic system of French was the essential elimination of words (and groups) bearing paroxytonic accent (Klausenburger 1970, pp. 17 and 50). As noted in section 1.4.1 above, French words showed an oxytonic accent during Period 1, except where the final vowel was [ə]. In the latter case the second-last syllable received the accent. With the general loss of word-final schwa by about the 17th century, paroxytonic accent ceased to be regular. The data on schwa behaviour in group-final position in present-day French show that retention

there is possible but infrequent. Paroxytonic accent is thus not absolutely impossible today, but it cannot be considered to be a major prosodic feature of the language as it was during Period 1.

Pulgram (1967, pp. 1639-42) discusses in some detail the relevance of schwa loss and retention patterns to the prosodic system of current French. His basic view of schwa behaviour is that "in recent Standard French, especially in its more colloquial subcodes, the number of omissions of optional /ə/'s has been on the increase" (1967, p. 1639). Provided such omissions do not result in the production of clusters or sequences which were formerly impossible, the matter is a stylistic one without significance to the *phonological* structure. According to Pulgram, however, some types of loss "are becoming common" which do violate distributional rules. Of particular importance here is loss in group-initial position, especially in phrases consisting of *je* + verb (e.g. *jø vais*, *jø marche* etc.); also in other forms such as *løvez-vous*, *vønez ici*, etc. All these losses involve the production of clusters which do not occur at the beginning of words, and which therefore did not occur in group-medial position prior to schwa loss in phrases like the above. At the moment, says Pulgram, such losses occur "principally" in group and word-initial position (presumably as opposed to word-medial position).

Pulgram then considers two possible future evolutions of this subsystem: (1) Losses producing such clusters and sequences may continue to be restricted to group-initial and group-medial word-initial positions. In this case, the occurrence of a cluster within

a group would mark the position as being word-initial. (2) Losses of schwa which produce these consonant groups could become established also in word-medial position, in which case they would not mark word-boundaries.

If pattern 1 were to become firmly established, Pulgram considers that the resultant marking of word-boundaries would constitute an important step away from the cursus type of prosodic organization, where word-boundaries are phonetically obliterated. Given this first step, other potential word-demarcation features (e.g. terminal accent on words, lack of liaison) might become generalized, until word-boundaries were rather consistently marked. Then French would have become a nexus language similar in prosodic typology to modern English.

There are a number of problems with this analysis. First, loss of schwa in group-initial position is not a recent phenomenon as Pulgram states, but occurred frequently at least by the mid-17th century (see section 3.6). Second, it is not correct that losses in [žəC], [ləv], [vən] etc. occur mainly in group and word-initial positions. A number of such sequences have occurred within words ever since the loss of schwa in word-medial position after a single consonant became general about the middle of Period 2[11] (examples: [žt] in *projeter*, [žl] in *dégeler*, [žr] in *boulangerie*, [lv] in *élever*, and [vn] in *avenir*). Thus, consonant sequences like these have never marked word-initial position, and never will within the present system of French consonant phonotactics. Third and most

important, Pulgram does not have an accurate view of the number of word-boundaries which are phonetically marked in current French. The discussions in the previous section and in Rochet (1977) have shown that such marking, although far from general, is an important characteristic of the modern French syntagm.[12] Furthermore, in at least some cases this type of demarcation has been in effect for several centuries. Thus, the number of word-boundaries which are marked today greatly exceeds the number which would be marked according to Pulgram's first view of schwa evolution described above (even supposing this view were accurate as concerns the date of loss in group-initial position and the lack of sequences like [žt] and [vn] in word-medial position). Thus, whether or not the basic prosodic unit of modern French should be considered to be the cursus,[13] schwa evolution is not likely to have a decisive effect in a possible movement away from, or farther away from, such a prosodic typology.[14]

5.7 - Suggestions for further research -

The present study has clearly revealed the main developments in the history of schwa loss from early Old French to the present. A complete description of the behaviour of schwa in current French is of course impossible because of the complexity of the system. Many more field studies will be required before such a description can even be considered: studies on the influence of stylistic and social factors would be especially useful.

The theoretical discussions in the present study have shown how intimately schwa behaviour through the centuries has been linked to and influenced by various universal factors in linguistic organization. Of particular importance are phonotactic structures and tendencies; others include the relevance of stylistic, social, and prescriptive influences. It would be interesting to examine the overall effects of such factors on the development of loss patterns among unstressed vowels in other languages, and to compare the results with those obtained here for French. Such a cross-language study would further deepen our understanding of the complex of influences which guide certain types of linguistic evolution.

Notes

1. Klausenburger (1970, pp. 73 and 75) makes an error in stating that there is no loss of schwa between [k] or [t] and a stop (as in *Que pensez-vous...*). Loss is possible in such cases, although it is likely less common than between other combinations of consonants. For the details, see section 4.2 above.

2. In fact, the only fully integrated clusters, aside from the [##OL] and [##OG] types, are given as [ps] (in *psychologie*), [tš] (in *tchèque*), and the [sO] clusters (e.g. *sport*, *smoking*). For a brief summary of the development of the latter type, see note 35 to chapter 1.

3. There are in addition, according to Klausenburger (1970, p. 72), a very few marginal two-member group-final clusters. Some of these are relatively recent loans (e.g. *bridge* in [dž], *punch* in [nš]); others are apparently native words in *-e* (e.g. *dogme* with [gm], *naphte* with [ft]). Klausenburger (1970, p. 72) considers the clusters of the latter group to be marginal because they appear "in 'rare' lexemes of definitely restricted use". Since this criterion is subjective, any decision based on it is at least partly subjective as well. The important point for the purposes of the present study is that the set of group-final clusters which can reasonably be considered marginal is small, and has at present no significant influence on the phonotactic system.

4. See also the discussion in Klausenburger (1970, p. 78), where emphasis is placed on the matter of closed and open syllables.

5. For convenience, this principle will be referred to in the present section as "the (syllabic) onset/coda principle".

6. This principle of accent dynamics is highly questionable, implying as it does that there is a universal tendency toward a fixed position for the accent. The many languages which show a partially or completely free accent (English, Spanish, etc.) are strong evidence that Schane's principle is too general.

7. For more detail on the views of various linguists regarding the French word, see Rochet (1977, pp. 187-9).

8. In such forms, the schwa appears immediately before a morpheme boundary. It thus appears that these divisions also play a role in schwa loss after a cluster: loss is more frequent before a morpheme boundary than within a morpheme. Details of the action of this factor remain to be elucidated.

9. For a discussion of demarcative phonic elements, see Trubetzkoy (1969, pp. 273-97) and Anderson (1965a). An example of a positive demarcative signal is the fixed accent found in many languages: since this is fixed with respect to word-boundaries, it marks their position (compare Trubetzkoy 1969, p. 277).

10. Compare Lucci (1976, p. 99):

> On peut dire...que la fonction démarcative subsiste, dans la mesure où, à contexte purement segmental identique, les probabilités d'occurrence des [ə] sont plus élevées à l'intérieur du mot qu'en finale.

See also Lucci (1976, p. 98).

11. Furthermore, some sequences of this type date from Period 1 (they do not involve schwa loss). Examples include [pt] (word-initial *pętit*) in *aptitude*, *septique*, and *septembre*; [sk] (word-initial *sécourir*) in *risquer*, *mousquet*, and *masquer*; and [ls] (word-initial *leçon*) in *calciner* and *malsain*.

12. It would be interesting to try to determine what proportion of word-boundaries actually are marked by morphophonemic processes which occur only there. This might be done by counting the number of marked and unmarked boundaries which occur in a typical text. It is likely, however, that a rather long text would be required to give an accurate result.

13. Perhaps Pulgram's view of the prosodic organization of French should be modified in terms of what is now known about the importance of word-boundaries, and in the light of any research which might be done along the lines suggested in note 12 immediately above.

14. Other factors, such as the use of the *accent d'insistance* and a reduction in the frequency of optional liaisons, suggest that French may be beginning an evolution towards a prosodic system more like that

of English, where every important word in the chain retains a word-accent and where the use of juncture permits speakers to phonetically mark any word-boundary if they desire to do so.

List of medieval texts and authors

The medieval examples cited in Chapters 2 and 3 come from the following works, which are listed alphabetically by the form used in the body of the text:

A. Continental French (for more details, see Bossuat 1951 and Gossen 1970, pp. 178-201)

Aiol - *Aiol et Mirabel* (about 1200)

Aucassin et Nicolette (early 13th c.)

Bastart de Bouillon (14th c.)

Beauvon de Commarchis (1335)

Chanson de Roland (late 11th or early 12th c.)

Chevaliers - *Li Chevaliers as deus espees* (about 1300)

Chronique rimée, by Philippe Mouskes (early 14th c.)

Eulalie - *La Séquence de Sainte Eulalie* (about 880)

Fille du comte - *La fille du comte de Pontieu* (13th c.)

Guillaume de Palerne (12th c.)

Huon de Bordeaux (early 13th c.)

Joinville - *Histoire de St. Louis, Credo, et Lettre a Louis IX*, by Jean, sire de Joinville (13th c.)

Jonas - *Homélie sur Jonas* (10th c.)

Livre des Mestiers - *Le Livre des métiers de Bruges* (14th or 15th c.)

Ogier le Danois, by Raimbert de Paris (13th c.)

Orson de Beauvais (12th c.)

Patelin - *Maistre Pierre Pathelin* (about 1465)

Pèlerinage de Charlemagne (mid 12th c.)

Poème Moral (early 13th c.)

Robin et Marion - *Le jeu de Robin et de Marion*, by Adam de la Halle (1285)

Roman de Rou, by Wace (mid 12th c.)

Rustebeuf - Various writings by Rustebeuf (mid 13th c.)

St. Alexis - *La vie de Saint Alexis* (11th c.)

St. Benoit - *Règle de Saint Benoit* (about 1200)

St. Bernard - *Sermons de Saint Bernard* (about 1200)

St. Léger - *La vie de Saint Léger* (10th c.)

St. Nicolas - *Le jeu de Saint Nicolas*, by Jean Bodel (1198)

Sermons Poitevins - (13th c.)

Strasburg Oaths (842)

Testament, by François Villon (1461)

B. Anglo-Norman (for more details, see Pope 1966, pp. 483-5)

Adgar - *Mary Legends*, by Adgar (late 12th c.)

Arundel Psalter (mid 12th c.)

Boeve - *Boeve de Haumtone* (mid 13th c.)

Bozon - Various writings by N. Bozon (about 1300)

Cambridge Psalter (mid 12th c.)

Chardri - *Josaphaz*, *Set Dormanz* and *Petit Plet*, by Chardri (early 13th c.)

Cumpoz, by Philippe de Thaun (early 12th c.)

Fantosme - *Chronique*, by Jordan Fantosme (late 12th c.)

Gaimar - *Estorie des Engleis*, by Geffrey Gaimar (mid 12th c.)

Oxford Psalter (mid 12th c.)

Quatre Livres - *Li Quatre Livres des Reis* (late 12th c.)

Rymer - *Foedera, Conventiones, Litterae*, by Rymer (about 1300)

St. Brendan - *Le Voyage de Saint Brendan* (early 12th c.)

St. Edmund - *La Vie de Saint Edmond le Rei*, by Denis Pyramus (late 12th c.)

Thomas - *Tristan*, by Thomas (late 12th c.)

List of Period 2 Works Used

The following is a list of the 16th, 17th, and 18th Century works which provided material for the tables and discussion of Chapter 3:

Académie Française (1694) *Le Dictionnaire de l'Académie Françoise.*

Académie Française (1718) *Nouveau Dictionnaire de l'Académie Françoise.*

Académie Française (1740) *Dictionnaire de l'Académie Françoise,* troisième édition.

Académie Française (1762) *Dictionnaire de l'Académie Françoise,* quatrième édition.

Alemand, Louis-Augustin (1688) *Nouvelles observations ou guerre civile des François sur la langue.*

Andry, Nicolas (1689) *Réflexions sur l'usage present de la langue françoise.*

Andry, Nicolas (1694) *Suite des Réflexions critiques sur l'usage présent de la langue françoise.*

Anonymous (1624) *Ecloge praecipuarum legum gallicae pronunciationis.*

Anonymous (1657) *Grammaire françoise.*

Aubert, Esprit (1613) *Les marguerites poetiques, tirées des plus fameux poetes françois tant anciens que modernes...*

Baïf, Jean-Antoine de (1574) *Etrénes de poézie fransoèze an vèrs mezurés.*

Bérain, N. (1675) *Nouvelles remarques sur la langue française.*

Bèze, Théodore (1554) *Alphabetum graecum.*

Bèze, Théodore (1584) *De Francicae linguae recta pronuntiatione.*

Bouillette (1760) *Traité des sons de la langue françoise et des caracteres qui les representent.*

Bovelles (1533) *Liber de differentia vulgarium linguarum et Gallici sermonis varietate.*

Buffet, Marguerite (1668) *Nouvelles observations sur la langue françoise.*

Buffier, Claude (1709) *Grammaire françoise.*

Cauchie, Antonii (1570) *Grammatica gallica.*

Cherrier, Sébastien (1766) *Equivoques et bizarreries de l'orthographe françoise, avec les moiiens d'y remedier.*

Chifflet, Laurent (1659) *Essay d'une parfaite grammaire de la langue françoise.*

Colleter, François (1665 - this edition 1878) "Le tracas de Paris." In *Paris ridicule et burlesque au dix-septième siècle*, new edition, ed. by P.-L. Jacob, pp. 227-338. Paris: Garnier.

Corneille, Thomas (1687) *Remarques sur la langue françoise de Monsieur de Vaugelas...*

Corneille, Thomas (1694) *Le Dictionnaire des arts et des sciences.*

Corneille, Thomas (1708) *Dictionnaire universel, géographique et historique...*

Deimier (1610) *L'Academie de l'art poetique...*

De la Faye, Abraham (1613) *Institutiones linguae gallicae.*

De la Touche (1696) *L'art de bien parler françois.* Nouvelle édition 1710.

Demandre (1769) *Dictionnaire de l'élocution françoise.*

Des Autels, Guillaume (1551) Replique de Guillaume des Autelz aux furieuses defenses de Louis Meigret.

De Wailly, Noël-François (1763) *Principes généraux et particuliers de la langue françoise.*

Dubois, Giacomo (1682) *Nuova gramatica francese.*

Duez, Nathanael (1669 - this edition 1973) *Der rechte et vollkommene Weg-weiser zu der französischen Sprach.* Geneva: Slatkine.

Du Gardin, Louys (1620) *Les premieres addresses du chemin de Parnasse.*

Dumas, Louis (1733) *La Bibliotheque des enfans.*

Duval, Jean-Baptiste (1604) *L'Eschole françoyse pour apprendre à bien parler et escrire selon l'usage de ce temps et pratique des bons auteurs.*

Estienne, Henri (1569) *Traicté de la conformité du language françois auec le grec...*

Estienne, Henri (1578) *Deux dialogues du nouueau langage françois italianizé, et autrement desguizé, principalement entre les courtisans de ce temps.*

Estienne, Henri (1579) *Proiet du liure intitulé de la Precellence du langage françois.*

Estienne, Henri (1582) *Hypomneses de Gall. lingua peregrinis eam discentibus necessariae: quaedam vero ipsis etiam Gallis multum profuturae...*

Estienne, Robert (1549) *Dictionnaire Francoislatin, autrement dict Les mots François, auec les manieres duser diceulx, tournez en latin*, 2nd edition.

Estienne, Robert (1557) *Traicté de la grammaire françoise.*

Fabri, Pierre (1521) *Le second liure de vraye rethorique.*

Fauleau (1781) *Elements de la langue françoise.*

Féraud, Jean-François (1761) *Dictionnaire grammatical de la langue françoise.*

Giffard, James (1641) *The french schoole-master...*

Harduin, Alexandre-Xavier (1757) *Remarques diverses sur la prononciation et sur l'ortographe.*

Hindret, J. (1687) *L'art de bien prononcer et de bien parler la langue françoise.*

Hindret, J. (1696) *L'art de prononcer parfaitement la langue françoise.*

Joubert, Laurent (1579) *Traité du ris...*

Lancelot, Claude (1663) *Breue instruction sur les règles de la poésie françoise.*

Lanoue, Odet de (1596) *Le Dictionnaire des rimes françoises.*

Laval, Antoine de (1614) *Paraphrase des CL pseaumes de David tant literale que mystique*, 2nd edition.

Malherbe (1606) Annotation des poésies de Philippe Desportes.

Martin, Daniel (1632) *Grammatica gallica.*

Matthieu, Abel (1559) *Deuis de la langue françoyse à Jehanne d'Albret, royne de Navarre, duchesse de Vandosme.*

Maupas, Charles (1625) *Grammaire et syntaxe françoise.*

Mauvillon, Eléazar (1754) *Cours complet de la langue françoise.*

Meigret, Louis (1542 - this edition 1972) *Traité touchant le commun usage de l'escriture françoise.* Geneva, Slatkine.

Meigret, Louis (1548) *Le Mènteur, ou l'Incredule de Lucian.*

Meigret, Louis (1550) *Defènses de Louîs Meigret touchant son orthographîe françoèze, contre les cènsures è calonnies de Glaumalis du Vezelet è de sès adherans.*

Meigret, Louis (1550) *La Reponse de Louîs Meigret a l'apolojîe de Jaqes Pelletier.*

Meigret, Louis (1550) *Le trɐtté de la grammère françoèze.*

Mellema, Elcie E.L. (1592) *Di·tionnaire.*

Ménage, Gilles (1672) *Observations de Monsieur Ménage sur la langue françoise.*

Monet, Philibert (1635) *Invantaire des deus langues françoise et latine.*

Moulis (1761) *Regles pour la prononciation des langues françoise et latine.*

Mourgues, Michel (1685) *Traité de la poesie françoise.* 2nd ed. 1697.

Nicot, Jean (1584) *Dictionnaire François-latin.*

Nicot, Jean (1606) *Thresor de la langue françoyse, tant ancienne que moderne.*

Oudin, Antoine (1633 - this edition 1972) *Grammaire françoise rapportée au langage du temps.* Geneva: Slatkine.

Oudin, Antoine (1655) *Recherches italiennes et françoises.*

Palsgrave, John (1530) *L'esclarcissement de la langue françoyse.*

Péletier du Mans, Jacques (1549) *L'Apologie à Louis Meigret.*

Péletier du Mans, Jacques (1550) *Dialogue de l'ortografe é prononciacion françoèse.*

Péletier du Mans, Jacques (1555) *L'Art poetique.*

Péletier du Mans, Jacques (1555) *L'amour des amours.*

Pillot, Jean (1550) *Gallicae linguae institutio.* 2nd edition 1561.

Poisson, Robert (1609) *Alfabet nouveau de la vrée et pure orthografe fransoize, et modéle sus iselui, en forme de dixionére.*

Ramus, P. (1562) *Gramère.*

Ramus, P. (1572) *Grammaire de P. de la Ramee, lecteur du roy en l'Vniuersité de Paris.*

Ramus, P. (1578) *Scholae in liberales artes.*

Renaud, Antoine (1697) *Maniere de parler la langue françoise selon ses differens styles.*

Richelet, Pierre (1667) *Dictionnaire de rimes.*

Richelet, Pierre (1671) *La versification françoise.*

Richelet, Pierre (1680) *Nouveau dictionnaire françois.*

Saint-Liens, Claudius (1580) *De pronuntiatione linguae gallicae.*

Sibilet, Thomas (1548) *Art poetique françois pour les studieux desirans paruenir à la perfection de la poesie françoise.*

Sylvius (Jacques Dubois) (1531) *In linguam gallicam Isagwge, una cum eiusdem grammatica lation-gallica, ex Hebrâeis, Graecis et Latinis authoribus.*

Tabourot, Etienne (1587) *Dictionnaire des rimes françoises.*

Tabourot, Etienne (1616) *Les Bigarrures et touches du seigneur des Accords avec les apophthegmes du sieur Gaulard et les escraignes dijonnoises.*

Thierry, Jean (1572) *Dictionnaire françoislatin.*

Tory, Geofroy (1529) *Champ fleury auquel est contenu lart et science de la deue et vraye proportion des lettres Attiques, quon dit autrement lettres antiques, et vulgairement lettres romaines, proportionnees selon le corps et visage humain.*

Thévoux (1752) *Dictionnaire universel françois et latin.*

Van der Aa, Jean (1622) *Grammatica gallica.*

Vaugelas, Claude Favre de (1647) *Remarques sur la langue françoise.*

Villecomte (1751) *Lettres modernes avec les réponses.*

Voltaire, François (1764) *Dictionnaire philosophique.*

Wodroephe, John (1625) *The Marrow of the French tongue,* 2nd edition.

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Brent, Edmund (1971) *Canadian French: A Synthesis*. Cornell University PhD Dissertation.

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